CMS Bundled Payments for Care Improvement Initiative Models 2-4: Year 3 Evaluation & Monitoring Annual Report – Appendices

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The Lewin Group

October 2017 – Revised October 2018

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Authors:

Laura Dummit, Grecia Marrufo, Jaclyn Marshall, Brandon Maughan, Tristan Ackerman, Sarah Bergman, Aylin Bradley, Rebecca Cherry, Inna Cintina, Daniel Cooper, Syvart Dennen, Philip Dishuck, Ayah Fannoun, Megan Hyland, Gina Gerding, Dan Gregory, Catherine Griffin, Ashley Johnson, Susan Joy, Jordan Kahn, Jon Kelly, Alex Lampert, Karla Lopez de Nava, Court Melin, Sebastian Negrusa, Julie Somers, Dan Strubler, Katarina Swanson, Ellen Tan, Kyi-Sin Than, Peter Weidner, Ayanna Williams, Grace Yang, Mark Zezza, David Zhang, Dean Farley, Ian Breunig, Andrea Hassol, Qian Gu, Sean McClellan, Matt Trombley, Christine LaRocca, Lindsay Kirsch, Colleen Kummet , Michelle Roozeboom

Lewin's address:

3130 Fairview Park Dr, Suite 500, Falls Church, VA 22042

Federal Project Officer:

Daver Kahvecioglu
Division of Data, Research, and Analytic Methods (DRAM)
Research and Rapid Cycle Evaluation Group (RREG),
Center for Medicare and Medicaid Innovation (CMMI),
Centers for Medicare and Medicaid Services (CMS)

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List of Appendices

Appendix A: BPCI Clinical Episodes and MS-DRGs

Episode	Anchor														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Acute myocardial infarction	280	281	282												
AICD generator or lead	245	265													
Amputation	239	240	241	255	256	257	474	475	476	616	617	618			
Atherosclerosis	302	303													
Back & neck except spinal fusion	490	491	518	519	520										
Coronary artery bypass graft	231	232	233	234	235	236									
Cardiac arrhythmia	308	309	310												
Cardiac defibrillator	222	223	224	225	226	227									
Cardiac valve	216	217	218	219	220	221	266	267							
Cellulitis	602	603													
Cervical spinal fusion	471	472	473												
Chest pain	313														
Combined anterior posterior spinal fusion	453	454	455												
Complex non-cervical spinal fusion	456	457	458												
Congestive heart failure	291	292	293												
Chronic obstructive pulmonary disease, bronchitis, asthma	190	191	192	202	203										
Diabetes	637	638	639												
Double joint replacement of the lower extremity	461	462													
Esophagitis, gastroenteritis and other digestive disorders	391	392													
Fractures of the femur and hip or pelvis	533	534	535	536											
Gastrointestinal hemorrhage	377	378	379												
Gastrointestinal obstruction	388	389	390												
Hip & femur procedures except major joint	480	481	482												

Episode	Anchor														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Lower extremity & humerus procedure except hip, foot, femur	492	493	494												
Major bowel procedure	329	330	331												
Major cardiovascular procedure	237	238	268	269	270	271	272								
Major joint replacement of the lower extremity	469	470													
Major joint replacement of the upper extremity	483	484													
Medical non-infectious orthopedic	537	538	551	552	553	554	555	556	557	558	559	560	561	562	563
Medical peripheral vascular disorders	299	300	301												
Nutritional and metabolic disorders	640	641													
Other knee procedures	485	486	487	488	489										
Other respiratory	186	187	188	189	204	205	206	207	208						
Other vascular surgery	252	253	254												
Pacemaker	242	243	244												
Pacemaker device replacement or revision	258	259	260	261	262										
Percutaneous coronary intervention	246	247	248	249	250	251	273	274							
Red blood cell disorders	811	812													
Removal of orthopedic devices	495	496	497	498	499										
Renal failure	682	683	684												
Revision of the hip or knee	466	467	468												
Sepsis	870	871	872												
Simple pneumonia and respiratory infections	177	178	179	193	194	195									
Spinal fusion (non-cervical)	459	460													
Stroke	61	62	63	64	65	66									
Syncope & collapse	312														
Transient ischemia	69														
Urinary tract infection	689	690													

Appendix B: Glossary of Terms & Acronym List

Exhibit B.1: Glossary

Name	Definition
30-, 60-, 90-, 120-, 150-, 180-day Post-Discharge Period (PDP)	The 30, 60, 90, 120, 150, or 180 days following discharge from the anchor hospitalization (Models 2 and 4) or the qualifying hospital stay (Model 3)
30-, 60-day Post-Bundle Period (PBP)	The 30 or 60 days following the end of the bundle period.
30-day Post-PAC Discharge Period (PPDP)	The 30 days following discharge from the qualifying PAC provider (Model 3 IRF, LTCH, and SNF only)
30 days HH	The 30 days following the start of a HH episode/admission to HHA.
Acute care hospital (ACH)	A health care facility that provides inpatient medical care and other related services for acute medical conditions or injuries.
Acute care qualifying hospitalization	The acute care hospitalization that precedes the start of a Model 3 episode of care. All Model 3 episodes of care start within 30 days of discharge from this acute care qualifying hospitalization.
Anchor hospital stay	The hospitalization that triggers the start of the episode of care for Models 2 and 4.
Awardee	A risk-bearing, financially responsible organization in the BPCI initiative. This entity may or may not be an episode initiator (EI).
Awardee Convener (AC)	Parent companies, health systems, or other organizations that assume financial risk under the Model for Medicare beneficiaries that initiate episodes at their respective Episode Initiating Bundled Payment Provider Organization (EI-BPPO). An AC may or may not be a Medicare provider or initiate episodes.
Baseline time period	The period of time that precedes the intervention period as a basis for comparison in difference-in-difference modeling. The baseline period spans from Q4 2011 through Q3 2012.
Beneficiary Incentive	This is one of the waivers an Awardee may utilize. This allows Awardees to offer patients certain incentives not tied to standard provision of health care, as long as it supports a clinical goal
BPCI Savings Pool	Collection of funds that consists solely of contributions from EIPs of Internal Cost Savings (ICS) and contributions from the Awardee of positive NPRA (collectively, "BPCI Savings") that are made available to distribute as Incentive Payments pursuant to Section III.C of the Awardee Agreement.
Bundle	The services provided during the episodes that are linked for payment purposes. The bundle varies based on the model and chosen episode length.
Bundle length	A pre-specified duration of time: 30, 60, or 90 days.
Care stinting	A potential unintended consequence of BPCI where services are reduced, resulting in lower quality of care outcomes.
Cherry-picking	A potential unintended consequence of BPCI where providers change their patient mix through increased admissions of less complex patients.
Clinical episode	One of the 48 episodes of the BPCI initiative related to a specific set of MS-DRGs.

Name	Definition
Clinical episode grouping	An aggregation of the 48 BPCI clinical episodes. Future analysis will most likely focus on the level 4 aggregation which has nine clinical episode groupings: (1) Non-surgical and surgical: GI; (2) Non-surgical: cardiovascular; (3) Non-surgical: neurovascular; (4) Non-surgical: ortho; (5) Non-surgical: other medical; (6) Non-surgical: respiratory; (7) Surgical: cardiovascular; (8) Surgical: ortho excluding spine; and (9) Surgical: spinal.
Convener approach	The level at which an episode initiator is participating in the initiative. This informs whether an episode initiator is under a Facilitator Convener or Awardee Convener, or if the episode initiator is a Single Awardee.
Designated Awardee Convener (DAC)	Parent companies, health systems, or other organizations that assume financial risk under the Model for Medicare beneficiaries that initiate episodes at their respective Episode Initiating Bundled Payment Provider Organization (EI-BPPO). These Awardees may or may not be Medicare providers or initiate episodes themselves. Unlike an Awardee Convener,this Awardee joined the initiative under a Facilitator Convener.
Designated Awardee (DA)	An entity that initiates episodes but, unlike a Single Awardee, joins the initiative under a Facilitator Convener (FC). The DA would have an agreement with CMS and assume financial risk for episodes initiated at its institution.
EPI Start 30, 60, 90	The first 30, 60, or 90 days of the episode of care.
Episode Initiator (EI)	Under Model 2, an EI is the participating hospital where the BPCI episode begins or a participating PGP if one of its physicians is the patient's admitting physician or surgeon for the anchor hospitalization. Under Model 3, an EI may be a participating PGP or a participating SNF, HHA, IRF, or LTCH that admits the patient within 30 days following a hospital discharge for an MS-DRG for the relevant clinical episodes (anchor hospitalization). Under Model 4, an EI is the participating hospital where the BPCI episode begins. SAs and DAs are EIs. ACs and DACs may or may not be EIs themselves and also have one or more EIs under their Awardee structure.
Episode-Integrated Provider (EIP)	A Medicare provider or supplier, including but not limited to an episode initiator, that is (1) participating in Care Redesign through a Gainsharing Arrangement that is set forth in a Participant Agreement with the Awardee (or is the Awardee itself); and (2) listed in the Gainsharing List.
Episode Initiating Bundled Payment Provider Organization (EI-BPPO)	Those individual Medicare providers that deliver care to beneficiaries. EI-BPPOs are EIs associated with an AC or DAC and initiate episodes. EI-BPPOs do not bear financial risk directly with CMS.

Name	Definition
Episode of Care	For all three models, an episode of care is triggered by an inpatient hospitalization for one of 48 clinical groupings of MS-DRGs. For Model 2, the episode is defined as an anchor hospitalization plus post discharge services provided within 30, 60, or 90 days of discharge from the anchor stay, including all readmissions that are not explicitly excluded (certain services unrelated to the triggering hospitalization are excluded from the episode). For Model 3, the episode begins upon admission to a post-acute care setting (including home health) within 30 days of discharge from the qualifying hospitalization and includes all services provided within the 30, 60, or 90 days of this admission (again, certain services unrelated to the triggering hospitalization are excluded from the episode). For Model 4, the episode is defined as an anchor hospitalization plus post discharge services provided within 30 days of discharge from the anchor stay, including all readmissions that are not explicitly excluded (certain services unrelated to the triggering hospitalization are excluded from the episode).
Episode-specific	Specific to one of the 48 clinical episodes.
Facilitator Convener (FC)	An entity that submits a BPCI application and serves an administrative and technical assistance function on behalf of one or more Designated Awardees or Designated Awardee Conveners. A Facilitator Convener does not have an agreement with CMS, nor do they bear financial risk under the Model.
Gainsharing	This is one of the waivers an Awardee may utilize. This allows participants to develop a methodology and share any Internal Cost Savings (ICS) and/or Net Payment Reconciliation Amounts (NPRA) as applicable.
Implementation Protocol	Awardee-submitted document that contains general Awardee information, care redesign interventions, gainsharing plan/methodology if applicable, and other details regarding waiver use.
Internal Cost Savings (ICS)	For each EIP, the measurable, actual, and verifiable cost savings realized by the EIP resulting from Care Redesign undertaken by the EIP in connection with providing items and services to Model 2, 3, or 4 beneficiaries within specific episodes of care. Internal Cost Savings does not include savings realized by any individual or entity that is not an EIP.
Lemon-dropping	A potential unintended consequence of the BPCI initiative where providers change their patient mix by avoiding high cost patients.
Model 2	Retrospective acute and post-acute care episode. The episode of care includes inpatient stay in the acute care hospital and all related services during the episode. The episode ends 30, 60, or 90 days after hospital discharge.
Model 3	Retrospective post-acute care only. The episode of care is triggered by an acute care hospital stay and begins at initiation of post-acute care services. The post-acute care services must begin within 30 days of discharge from the inpatient stay and end 30, 60, or 90 days after the initiation of the episode.
Model 4	Prospective acute care hospital stay only. CMS makes a single, prospectively determined bundled payment to the hospital that encompasses all services furnished during the inpatient stay by the hospital, physicians, and other practitioners. Related readmissions for 30 days after hospital discharge are included in the bundled payment amount.

Name	Definition
Net Payment Reconciliation Amount (NPRA)	The Target Price minus the total dollar amount of Medicare fee-for-service expenditures for items and services (collectively referred to as "Aggregate FFS Payment" or "AFP") furnished by the Awardee, the episode initiator, EIPs, gainsharers, or third party providers during an episode of care. Not applicable for Model 4.
Participant	An ACH, PGP, SNF, LTCH, HHA, or IRF that is actually initiating episodes under the BPCI initiative *or* an Awardee that is not an episode initiator.
Phase I	An initial period before a participant has been "Awarded" when CMS and the potential participant prepare for implementation of the BPCI initiative and assumption of financial risk.
Phase II	The phase of the initiative when a participant is considered "Awarded" and is allowed to begin initiating some or all of its clinical episodes and bearing financial risk, as applicable.
PM/RC Report	Quarterly analysis of the BPCI Initiative.
Post-acute care (PAC)	All care services received by the beneficiary after discharge from the qualifying hospital stay. Includes care from the PAC provider (SNF, IRF, LTCH, HHA) as well as any potential inpatient hospitalizations (readmissions), professional services, and/or outpatient care.
Post-acute care qualifying admission	An admission to a participating (or comparison group) PAC provider within 30 days of discharge from the qualifying hospitalization upon which a Model 3 episode begins.
Post-bundle care	The care within an episode of care that is not covered under the BPCI initiative.
Post-discharge period (PDP)	Period of time starting on the day of the anchor hospitalization (Model 2 and 4), qualifying hospitalization (Model 3), or transfer hospital discharge.
Qualifying hospital stay	The acute care hospitalization that precedes the start of a Model 3 episode of care. All Model 3 episodes of care start within 30 days of discharge from this acute care qualifying hospitalization.
Risk-adjusted	When sufficient sample size was available, we risk-adjusted our outcomes. Without adequate risk adjustment, providers with a sicker or more service intensive patient mix would have worse outcomes and providers with healthier patients would have better outcomes even if nothing else differed. All measures were risk adjusted for service mix; demographic factors, prior health conditions based on Hierarchical Chronic Conditions (HCC) indicators, measures of prior care use, and provider characteristics.
Salesforce	A database where CMS stores secure, frequently-updated data about BPCI initiative participants and episodes, from which Lewin can process various reports at any time.
Single Awardee (SA)	An individual Medicare provider that assumes financial risk for episodes initiated at their institution. SAs are also episode initiators.
Three-day SNF Waiver	This is one of the waivers an Awardee may utilize. This allows Model 2 participants to waive the three-day hospital stay requirement for Part A skilled nursing facility coverage.
Within-Bundle Care	Model 2: Any care provided during the anchor hospital stay and the first 30, 60, or 90 days of the post-discharge period, depending on the bundle length. Model 3: any care provided during the 30, 60, or 90 days from the BPCI initiative participating PAC provider admission, depending on the bundle length.

Exhibit B.2: Acronyms

Acronym	Definition
AC	Awardee Convener
ACE	Medicare Acute Care Episode ACE Demonstration
ACH	Acute Care Hospital
ACO	Accountable Care Organization
AHRF	Area Health Resource File
APC	Ambulatory Payment Classification
BPCI	Bundled Payments for Care Improvement
CBO	Congressional Budget Office
CBSA	Core-Based Statistical Area
CCN	CMS Certification Number
CCW	Chronic Conditions Data Warehouse
CMG	Case-mix group
CMS	Centers for Medicare & Medicaid Services
COPD	Chronic Obstructive Pulmonary Disease
DAC	Designated Awardee Convener
DiD	Difference in Difference
ED	Emergency Department
EDB	Enrollment Database
EI	Episode Initiator
EI-BPPO	Episode Initiating Bundled Payment Provider Organization
EIP	Episode-Integrated Provider
ESRD	End-Stage Renal Disease
FC	Facilitator Convener
FFS	Fee-for-service
HCC	Hierarchical Condition Category
HCPCS	Healthcare Common Procedure Coding System
HH	Home Health
HHA	Home Health Agency
HIE	Health Information Exchange
HIT	Health Information Technology
HRR	Hospital Referral Region
ICS	Internal Cost Saving
IDR	Integrated Data Repository
IP	Implementation Protocol
IPPS	Inpatient Prospective Payment System
IQR	Inpatient Quality Reporting
IRF	Inpatient Rehabilitation Facility

Acronym	Definition
IRF-PAI	Inpatient Rehabilitation Facility Patient Assessment
LOS	Length of stay
LTC	Long Term Care
LTCH	Long Term Care Hospital
MBSF	Medicare Beneficiary Summary File
MCC	Major Complication or Comorbidity
MDM	Master Data Management
MDS	Minimum Data Set
MS-DRG	Medicare Severity-adjusted Diagnosis Related Group
NHC	Nursing Home Compare
NOA	Notice of Admission
NPRA	Net Payment Reconciliation Amount
NQF	National Quality Forum
OASIS	Outcome and Assessment Information Set
OIP	Other Inpatient
ONC	Office of the National Coordinator
PAC	Post-acute Care
PACE	Program of All-Inclusive Care for the Elderly
PBP	Post-Bundle Period
PCP	Primary Care Physician
PDP	Post-Discharge Period
PECOS	Provider Enrollment and Chain/Ownership System
PGP	Physician Group Practice
PM/RC	Program Monitoring, Rapid Cycle
POS	Provider of Service
PPDP	Post-PAC Discharge Period
RUG	Resource Use Group
SA	Single Awardee
SAS	Statistical Analysis Software
SFTP	Secure File Transfer Protocol
SNF	Skilled Nursing Facility
TEP	Technical Expert Panel

Appendix C: Count of episodes by Model, episode initiator type, and clinical episode, Q4 2013 - Q3 2015

Table C.1: Count of Model 2 patient episodes during BPCI intervention period by episode initiator type and clinical episode

Clinical Episode	Patient episodes (N=242,375)		
	ACH (N=148,309)	PGP (N=94,066)	%
Major joint replacement of the lower extremity	53,622	25,407	32.6%
Sepsis	11,509	9,999	8.9%
Congestive heart failure	14,179	5,776	8.2%
Simple pneumonia and respiratory infections	10,134	6,187	6.7%
Chronic obstructive pulmonary disease, bronchitis, asthma	8,770	4,989	5.7%
Renal failure	3,105	3,770	2.8%
Urinary tract infection	2,811	3,671	2.7%
Hip & femur procedures except major joint	3,077	3,229	2.6%
Stroke	4,227	2,049	2.6%
Gastrointestinal hemorrhage	2,465	2,542	2.1%
Medical non-infectious orthopedic	2,894	2,106	2.1%
Cellulitis	2,414	2,410	2.0%
Cardiac arrhythmia	2,604	2,022	1.9%
Acute myocardial infarction	2,684	1,661	1.8%
Esophagitis, gastroenteritis and other digestive disorders	1,611	2,577	1.7%
Other respiratory	1,981	1,948	1.6%
Percutaneous coronary intervention	1,889	1,490	1.4%
Nutritional and metabolic disorders	1,237	2,017	1.3%
Cardiac valve	2,541	144	1.1%
Coronary artery bypass graft	2,302	31	1.0%
Spinal fusion (non-cervical)	1,314	967	0.9%
Red blood cell disorders	495	1,193	0.7%
Major joint replacement of the upper extremity	652	986	0.7%
Diabetes	610	858	0.6%
Major bowel procedure	1,238	226	0.6%
Gastrointestinal obstruction	671	746	0.6%
Revision of the hip or knee	814	491	0.5%
Syncope & collapse	418	677	0.5%
Transient ischemia	454	522	0.4%
Other vascular surgery	743	214	0.4%
Chest pain	348	546	0.4%
Cervical spinal fusion	612	265	0.4%
Fractures of the femur and hip or pelvis	432	420	0.4%

Clinical Episode	Patient episodes (N=242,375)		
	ACH (N=148,309)	PGP (N=94,066)	%
Medical peripheral vascular disorders	499	324	0.3%
Lower extremity and humerus procedure except hip, foot, femur	542	252	0.3%
Pacemaker	481	255	0.3%
Amputation	258	346	0.2%
Major cardiovascular procedure	456	97	0.2%
Double joint replacement of the lower extremity	248	129	0.2%
Atherosclerosis	192	128	0.1%
Back & neck except spinal fusion	207	98	0.1%
Cardiac defibrillator	201	65	0.1%
Combined anterior posterior spinal fusion	133	109	0.1%
Removal of orthopedic devices	125	48	0.1%
Complex non-cervical spinal fusion	68	16	0.0%
Pacemaker device replacement or revision	26	32	0.0%
Other knee procedures	13	28	0.0%
AICD generator or lead	3	3	0.0%

Table C.2: Count of Model 3 intervention episodes by episode initiator type and clinical episode

Clinical Episode	Count of patient episodes by EI type (N=35,711)					
	SNF (N=22,039)	HHA (N=7,037)	IRF (N=396)	LTCH (N=118)	PGP (N=6,121)	%
Major joint replacement of the lower extremity	3,322	693	101	1	3672	21.8%
Congestive heart failure	1,625	2,703	30	15	131	12.6%
Simple pneumonia and respiratory infections	1,437	728	18	13	380	7.2%
Sepsis	2,180	57	9	49	253	7.1%
Medical non-infectious orthopedic	1,565	13	0	0	32	4.5%
Urinary tract infection	1,116	329	0	0	128	4.4%
Stroke	949	349	100	0	128	4.3%
Chronic obstructive pulmonary disease, bronchitis, asthma	756	563	0	11	71	3.9%
Hip & femur procedures except major joint	890	51	66	1	221	3.4%
Renal failure	1,051	30	0	0	97	3.3%
Other respiratory	750	245	0	28	121	3.2%
Cardiac arrhythmia	488	163	0	0	135	2.2%
Nutritional and metabolic disorders	422	18	0	0	195	1.8%
Cellulitis	491	2	0	0	55	1.5%
Acute myocardial infarction	343	103	0	0	74	1.5%

Clinical Episode	Count of patient episodes by EI type (N=35,711)					
	SNF (N=22,039)	HHA (N=7,037)	IRF (N=396)	LTCH (N=118)	PGP (N=6,121)	%
Fractures of the femur and hip or pelvis	389	17	18	0	15	1.2%
Esophagitis, gastroenteritis and other digestive disorders	382	6	0	0	45	1.2%
Gastrointestinal hemorrhage	380	6	0	0	46	1.2%
Major bowel procedure	376	8	0	0	27	1.2%
Cardiac valve	260	113	0	0	5	1.1%
Other vascular surgery	243	119	0	0	10	1.0%
Coronary artery bypass graft	159	157	0	0	36	1.0%
Medical peripheral vascular disorders	257	69	0	0	21	1.0%
Syncope & collapse	296	4	0	0	46	1.0%
Revision of the hip or knee	181	109	14	0	7	0.9%
Percutaneous coronary intervention	183	93	0	0	15	0.8%
Diabetes	199	16	0	0	23	0.7%
Red blood cell disorders	165	3	0	0	39	0.6%
Spinal fusion (non-cervical)	103	83	8	0	2	0.5%
Pacemaker	167	2	0	0	11	0.5%
Gastrointestinal obstruction	139	0	0	0	25	0.5%
Lower extremity and humerus procedure except hip, foot, femur	132	8	0	0	6	0.4%
Major joint replacement of the upper extremity	108	29	0	0	4	0.4%
Transient ischemia	104	2	0	0	14	0.3%
Chest pain	63	30	0	0	3	0.3%
Amputation	66	4	0	0	4	0.2%
Major cardiovascular procedure	13	44	0	0	6	0.2%
Double joint replacement of the lower extremity	45	0	15	0	0	0.2%
Cardiac defibrillator	34	21	0	0	0	0.2%
Cervical spinal fusion	12	32	11	0	0	0.2%
Back & neck except spinal fusion	40	9	6	0	0	0.2%
Removal of orthopedic devices	46	0	0	0	0	0.1%
Other knee procedures	41	1	0	0	0	0.1%
Pacemaker device replacement or revision	25	0	0	0	12	0.1%
Complex non-cervical spinal fusion	25	3	0	0	0	0.1%
Atherosclerosis	17	1	0	0	4	0.1%
Combined anterior posterior spinal fusion	4	1	0	0	0	0.0%
AICD generator or lead	0	0	0	0	2	0.0%

Table C.3: Count of Model 4 patient episodes during BPCI intervention period by clinical episode

Clinical Episode	Patient episodes (N=7,682)	
	N	%
Major joint replacement of the lower extremity	3,591	46.7%
Coronary artery bypass graft	798	10.4%
Spinal fusion (non-cervical)	685	8.9%
Percutaneous coronary intervention	661	8.6%
Cardiac valve	495	6.4%
Cervical spinal fusion	298	3.9%
Pacemaker	292	3.8%
Back & neck except spinal fusion	193	2.5%
Congestive heart failure	184	2.4%
Revision of the hip or knee	161	2.1%
Complex non-cervical spinal fusion	87	1.1%
Cardiac defibrillator	55	0.7%
Sepsis	48	0.6%
Combined anterior posterior spinal fusion	43	0.6%
Double joint replacement of the lower extremity	33	0.4%
Acute myocardial infarction	22	0.3%
Pacemaker device replacement or revision	19	0.2%
Other knee procedures	15	0.2%
AICD generator or lead	2	0.0%

Appendix D: Beneficiary Survey Instrument Waves 2-5

CENTERS FOR MEDICARE & MEDICAID SERVICES

Health Care Experience Survey

☐ If the person this survey was mailed to cannot complete the survey, and there is no one else who can do so for him or her, please check here and return the blank survey in the enclosed postage-paid envelope.
Thank you.

Instructions:

- Please read each question carefully and respond by shading the circle or box next to the response that most closely represents your opinion.
- Please shade only one circle for each question, unless it tells you to "Choose all that apply."
- While you can use a pen, please use a PENCIL in case you want to change your answer.
- Please do NOT use felt tip pens.
- Please erase cleanly or white out any marks you wish to change.
- Please do not make any stray marks on the form.

We are interested in the quality of care you received in 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 into 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 in the hospital and other places you received care after you left the hospital. The last part of the survey asks a few general questions about you.

1. 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

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.

2. Thinking about the week before you were hospitalized, 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 were hospitalized, how much help did you need from another person with **planning regular tasks**, such as shopping 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 were hospitalized, 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 were hospitalized, 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
   - ○ I could walk one block by myself without resting
   - ○ I could walk from one room to another by myself without resting
   - ○ I was not able to walk by myself without resting
   - ○ Don't know/Don't remember

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

   - ○ I had no difficult 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 were hospitalized, 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 were hospitalized, 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 you left the hospital and we would like to know how you have been doing LATELY.

9. Over the **past two weeks,** how often have you been bothered by feeling little interest or pleasure in doing things?

   - ○ Not at all
   - ○ Several days (1-7 days)
   - ○ More than half the days (8-11 days)
   - ○ Nearly every day (12 or more days)

10. Over the **past two weeks,** how often have you been bothered by feeling down, depressed or hopeless?

    - ○ Not at all
    - ○ Several days (1-7 days)
    - ○ More than half the days (8-11 days)
    - ○ Nearly every day (12 or more days)

Now we would like to know how you are doing TODAY.

11. 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

12. How much help do you currently need from another person with **planning regular tasks,** such as shopping 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

13. 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

14. 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
    - ○ I can walk one block by myself without resting
    - ○ I can walk from one room to another by myself without resting
    - ○ I am not able to walk by myself without resting
    - ○ Don't know/Don't remember

15. 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

16. 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

17. 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

18. **In general,** how would you rate your physical health?

- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor

19. **In general,** how would you rate your mental health today, including your mood and your ability to think?

- ○ Excellent
- ○ Very good
- ○ Good
- ○ Fair
- ○ Poor

Section 3. Health Care Experiences

Now, we would like to hear about your experiences while you were in the hospital listed in the cover letter and any other place where you received care following that stay in 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 during your time in 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, skilled nursing facility, an assisted living facility, or at home.

20. Thinking about all of the care you received in the hospital and afterwards, how often did you, your family, or your caregiver **get conflicting advice from medical staff about your treatment**?

    - ○ Never
    - ○ Sometimes
    - ○ Usually
    - ○ Always

21. Thinking about all of the care you received in the hospital and afterwards, how often were **the services you got appropriate for the level of care you needed**?

    - ○ Never
    - ○ Sometimes
    - ○ Usually
    - ○ Always

22. What is your preferred language?

    - ○ English
    - ○ Spanish
    - ○ Other

23. Thinking about all of the care you received in the hospital and afterwards, **how often did medical staff speak to you in your preferred language**?

    - ○ Never
    - ○ Sometimes
    - ○ Usually
    - ○ Always

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

24. Thinking about when you left the hospital, **were you discharged at the right time**?

    - ○ No, I was discharged too early
    - ○ No, I was discharged too late
    - ○ Yes, it was the right time

How much do you agree or disagree with the following statement?

25. Thinking about when you left the hospital listed in the cover letter, 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

26. Where do you reside now?

- ○ At my own home, in someone else's home, or in an assisted living facility **(CONTINUE WITH Question 27)**
- ○ In a rehabilitation center, nursing home, or other health care facility **(GO TO Question 31 located on the bottom of page 11)**

27. 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

28. 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

If you currently reside in a rehabilitation center, nursing home, or other health care facility, start at Question 31

29. 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

30. 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

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

- ○ Not at all satisfied
- ○ Slightly satisfied
- ○ Moderately satisfied
- ○ Quite a bit satisfied
- ○ Extremely satisfied

Continue onto back cover

The last set of questions is about you.

32. Who do you live with?

- ○ Live alone
- ○ Live with other(s)
- ○ Live with a paid helper

33. Are you male or female?

- ○ Male
- ○ Female

34. 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 degree
- ○ 4-year college degree
- ○ More than 4-year college degree

35. Are you of Hispanic, Latino, or Spanish origin?

- ○ No, not of Hispanic, Latino, or Spanish origin
- ○ Yes, of Hispanic, Latino, or Spanish origin

36. What is your race? (Choose all that apply.)

- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Other Pacific Islander

Thank you for completing the survey and mailing it back in the enclosed envelope.

Appendix E: Case Study Site Sample and Interview Protocol

Exhibit E.1: Characteristics of Case Study Participants Q4 2013 to Q3 2016 and all BPCI Episode Initiators

		Case study participants (N=66)		All BPCI episode initiators in Q4 2013 through Q4 2015 (N=1,870*)	
Model	2	29	44%	695	37%
	3	30	45%	1,152	62%
	4	7	11%	23	1%
Participant Role	Designated Awardee	13	20%	214	11%
	Single Awardee	11	17%	70	4%
	Episode Initiators (that are not Awardees)	40	61%	1,577	84%
	Designated Awardee Convener	1	0%	4	0%
	Awardee Convener	2	3%	5	0%
Type of Participant	Skilled Nursing Facility	21	32%	882	47%
	Home Health Agency	5	8%	116	6%
	Acute Care Hospital	31	47%	446	24%
	Physician Group Practice	6	9%	416	22%
	Inpatient Rehabilitation Facility; Long-term Care Hospital	3	5%	10	1%
Clinical Episodes	Orthopedic surgery	54	82%	1,307	70%
	Non-surgical: other medical	33	50%	940	50%
	Non-surgical: neurovascular	21	32%	566	30%
	Non-surgical: respiratory	32	48%	898	48%
	Non-surgical: cardiovascular	38	58%	949	51%
	Non-surgical and surgical: GI	17	26%	613	33%
	Cardiovascular surgery	29	44%	850	45%
	Non-surgical: Ortho	23	35%	582	31%
	Spinal surgery	26	39%	478	26%
Geographic Region	Northeast	18	27%	479	26%
	South	18	27%	653	35%
	West	17	26%	363	19%
	Midwest	13	20%	375	20%

Source: Lewin analysis of CMS's BPCI database, as of June 2016, on BPCI participants from Q4 2013 through Q4 2015.

*Reflects the number of episode-initiating BPCI participants as of Q4 2015, the last quarter to join BPCI. Awardees that serve administrative functions and do not, by definition, initiate episodes, are omitted from these columns.

Note: Physician Group Practices are permitted to participate in Models 2 and 3 simultaneously for different clinical episodes. These PGPs are counted twice in the 'All BPCI' columns. There are 277 distinct PGP providers. Because participants can select in multiple episodes across groups, the clinical episode rows will not sum to the total number of episode initiators.

BPCI Case Study Interview Protocol

Before every interview with a new participant, read:

Thank you for taking the time to join us today. The Lewin Group, with its partners Abt Associates Inc. and Telligen are under contract to the Centers for Medicare & Medicaid Innovation (CMMI) to evaluate the Bundled Payments for Care Improvement (BPCI) initiative. This evaluation includes conducting site visits with health care organizations participating in the initiative.

The purpose of these interviews is to better understand the impact of the BPCI initiative on health care delivery, outcomes, and costs—particularly the challenges and the achievements of BPCI in delivering high-quality and cost-effective care. We would like your views on the implementation of the BPCI initiative in this facility and how you think it has affected patient care.

Most interviews will take 1 hour. Thank you in advance for taking the time to speak with us.

I. Opening Session

A. Organization Characteristics

1. Can you briefly describe your organization?
2. How many staff members do you have?
3. (For hospitals & SNFs) What is your bed capacity?
4. What is your total annual patient volume?
   a. How many BPCI patients do you have (or expect) annually?
5. Is this facility part of a larger health system? If so, please describe it.

B. Market Characteristics

1. How would you describe the local health care market?
2. How competitive is your market?
   a. (For hospitals) What hospitals are your main competitors?
   b. (For PAC) How competitive is the PAC market?
3. How widespread is managed care in this area?
   a. How common is participation in Medicare Advantage?
   b. Are there local Accountable Care Organizations?
4. Are you aware of other local health systems that are participating in BPCI?

II. Executive Leadership

A. BPCI Structure

1. Entry decision

a. Why did your organization decide to participate in BPCI?

b. Who did you consult in making this decision (e.g., partners or consultants)?

c. Why did you select the model, episodes, and episode length you chose? Did financial analysis influence these decisions? Did you receive input from partners or consultants?

d. Are you considering dropping any episodes? If you were able, are there any other changes related to episodes that you would make?

2. Partnership decisions/network development

a. Who are your BPCI partners and why did you choose them?

b. Did you work previously with these partners or are these relationships new for BPCI?

c. Are you doing gainsharing? If so, with whom? How is this working out?

d. On what aspects of BPCI have you engaged with partners? (e.g., standardizing care protocols, improving care transitions, improving data sharing, decisions regarding gainsharing)

e. Are you working with community-based service organizations (e.g., aging network organizations, senior centers, others)? What are their roles?

3. Financial Results

a. What are your gains or losses to date? What trends have you seen in your financial results?

b. What is driving your gains or losses?

c. Have you made any adjustments to your care processes as a result? Do you anticipate eliminating episodes based on these financial results?

4. Waiver Use

a. What beneficiary incentives, if any, have been implemented? How is this going?

b. Are you using the 3-day SNF waiver? How is this working out?

c. Have you used the home visit waiver? If so, how it is working? If not, why not?

d. Do you have experience with other BPCI waivers? (e.g., telehealth)

B. Planning/operations and other health reform initiatives

1. What share of your patients is paid under BPCI? How does this compare to your expectations?
    a. Is this much BPCI enough to drive systemic change?
2. Are you involved in ACOs, medical homes, or other bundled payment type initiatives?
    a. If yes, are these programs through CMS, a state initiative, or a private payer initiative?
    b. Are other organizations in your local market involved in these initiatives?
    c. Did these programs affect your decision to participate in BPCI, or drive BPCI results?

C. Impact of BPCI and Care Redesign

1. Please briefly describe the care redesign activities you have conducted.
    a. Was the care redesign launched as a result of participating in BPCI?
2. What care process changes were informed by physician input?
3. What impact, if any, is care redesign having on:
    a. Patient outcomes (e.g., mortality, functional outcomes, readmission rate)
    b. Cost per case
    c. Care transitions with other health providers (hospitals, PAC, primary physicians, etc.)
    d. Use of PAC services (% of patients discharged to PAC; SNF length of stay)
4. How do you identify appropriate PAC settings for BPCI patients?
    a. What sort of information do you provide to patients regarding PAC provider choice?
5. How has care management affected your organization's operations?
    a. Have you changed staffing levels or launched new trainings?
    b. Are there new responsibilities or roles for staff members?
6. How do you ensure that your care redesign does not produce unintended consequences?
    a. Adverse patient selection ("cherry picking" or "lemon dropping")
    b. Inadequate or insufficient care

7. For PGPs only:
    a. Do you track individual physician performance?
    b. What feedback is provided to physicians (benchmarking, report cards)? How often?
    c. What data do you share with your partners (hospitals, PACs)?
        i. Are these data risk-adjusted?

D. BPCI Outcomes, Successes and Challenges

1. What have been your greatest challenges?
2. Have you seen any unintended consequences from BPCI, either good or bad?
3. Would your BPCI approach work for other providers?
4. Any important lessons to share with other BPCI participants?

III. Care Redesign Leadership

A. Care Redesign Approach

1. Did your organization conduct a care redesign program for BPCI?
   a. If no, have you conducted a care redesign program in recent years?
2. Please describe your approach to care redesign.
   a. How is your BPCI care redesign different from your prior service approaches?
3. What information did you use to guide the care redesign process? (e.g., internal quality data, clinical guidelines, governmental reports)
4. How far along is your organization in implementing the planned care redesign activities?
   a. What parts of the implementation have been easier (or more difficult) than expected?
   b. How did you prioritize activities?
   c. What are your next steps?
5. (If not addressed already in description of care redesign): What process changes have been necessary to implement BPCI?
   a. New care protocols
   b. New meetings or reports to educate providers
   c. New staff responsibilities
   d. New patient monitoring protocols
6. Do you have protocols in place to monitor patient care and functional status across settings?
7. Are care redesign initiatives working better with certain partners or types of sites? (hospitals, SNFs, PCPs)
8. Does care redesign involve non-BPCI patients as well as BPCI patients?

B. Key Implementation Factors

1. In your experience, what factors were required for successful implementation of BPCI?
   a. How important is infrastructure?
   b. Analysis of operations data (patient volume, length of stay)
   c. Financial models
   d. Care redesign

2. Did you establish new partners internally or in the community to implement care redesign?

3. (If applicable…) Have any of the waivers under the BPCI program affected your design or implementation of care redesign interventions?

4. Would you do anything differently if you were starting again?

C. Impacts of Care Redesign Approach

1. What impact, if any, is the care redesign having on…?
   a. Patient outcomes (e.g., mortality, functional outcomes, readmission rate)
   b. Cost per case
   c. Care transitions with other health providers (hospitals, PAC, primary physicians, etc.)
   d. Use of PAC services (SNF to HHA vs. straight to HHA)

2. How do you identify appropriate PAC settings for BPCI patients?
   a. What sort of information do you provide to patients regarding PAC provider choice?
   b. How do you ensure that patient choice is maintained throughout the referral process?

3. How has care management affected your organization's operations? (new staff, new training, new responsibilities or roles for staff?)

4. How do you ensure that your care redesign approach does not produce unintended consequences?
   a. Adverse patient selection (e.g., "cherry picking" or "lemon dropping")
   b. Inadequate or insufficient care

5. For PGPs only:
   a. Do you track individual physician performance?
   b. What feedback is provided to physicians (benchmarking, report cards)? How often?
   c. How do the physicians react to this information?
   d. What data do you share with your partners (hospitals, PACs)?
      i. Are these data risk-adjusted?

6. For Single Awardees only:
    a. How do you make use of the Awardee feedback report from CMS?
    b. What have you found most helpful about this report?
    c. Is there additional information that you would find helpful if it were included in the feedback report?

D. BPCI Outcomes, Success and Challenges

1. What have been your greatest challenges?
2. Have you seen any unintended consequences from BPCI, either good or bad?
3. Would your BPCI approach work in other places?
4. What lessons do you think we should share with other BPCI participants?

IV. Care Redesign Operations – Direct Care Nursing Staff

1. When did you learn that [your organization] was participating in BPCI? How did you find out?
2. Are direct care staff (e.g., licensed and unlicensed nursing staff) notified if a patient is a BPCI patient? How are they notified?
    a. What proportion of BPCI patients do you think staff members are informed of?
3. What type of education or training have you received in regard to BPCI?
    a. If so, what topics were covered?
    b. Was the education and training sufficient for you to do your job?
    c. Are there topics that you wish this training had addressed more fully?
4. Have you implemented any standardized assessment, communication, or treatment protocols because of BPCI? What's been the impact on BPCI patients? On other patients?
5. Are there care protocols that you apply to BPCI patients but not to others?
6. How have patient/family education efforts changed as a result of BPCI?
7. Have you noticed a different level of physician engagement since the start of BPCI?
    a. Does the level of engagement differ for BPCI patients versus non-BPCI patients?
8. Is discharge planning different since BPCI was implemented?
    a. Is this different for BPCI and non-BPCI patients?
9. Please share the experience of a typical BPCI patient (no names please).
    a. How does this experience differ from the typical experience before BPCI?
10. Given your BPCI care process as described, how would you manage the following situations (as applicable):
    a. A patient/ caregiver insists on a last minute change in discharge destination. (e.g., SNF stay instead of HH care) or resists discharge.
    b. A physical therapist raises concerns about the patient's discharge destination.
    c. A patient arrives in the emergency department with concerns about his/ her condition (e.g., the appearance of a wound, fever).
        i. How do your responses to these scenarios differ from pre-BPCI care?

V. Care Redesign Operations – Interdisciplinary Team Members Other than Nursing (e.g., therapists, social workers, dietitians, etc.)

1. When did you learn that [your organization] was participating in BPCI? How did you find out?
2. Are direct care staff (e.g., licensed and unlicensed nursing staff) notified if a patient is a BPCI patient? How are they notified?
    a. What proportion of BPCI patients do you think staff members are informed of?
3. What type of education or training have you received in regard to BPCI?
    a. If so, what topics were covered?
    b. Was the education and training sufficient for you to do your job?
    c. Are there topics that you wish this training had addressed more fully?
4. Have you implemented any standardized assessment, communication, or treatment protocols because of BPCI? What's been the impact on BPCI patients? On other patients?
5. Are there care protocols that you apply to BPCI patients but not to others?
6. How have patient/family education efforts changed as a result of BPCI?
7. Have you noticed a different level of physician engagement since the start of BPCI?
    a. Does the level of engagement differ for BPCI patients versus non-BPCI patients?
8. Is discharge planning different since BPCI was implemented?
    a. Is this different for BPCI and non-BPCI patients
9. Please share the experience of a typical BPCI patient (no names please).
    a. How does this experience differ from the typical experience before BPCI?
10. Given your BPCI care process as described, how would you manage the following situations (as applicable):
    a. A patient/ caregiver insists on a last minute change in discharge destination. (e.g., SNF stay instead of HH care) or resists discharge.
    b. A physical therapist raises concerns about the patient's discharge destination.
    c. A patient arrives in the emergency department with concerns about his/ her condition (e.g., the appearance of a wound, fever).
        i. How do your responses to these scenarios differ from pre-BPCI care?

VI. Quality Management

A. BPCI Quality Management Approaches/ Implementation

1. What data or measures do you track regarding quality of care?
   a. Do you track additional or different metrics for BPCI patients?
2. What do you feel are the most important indicators of quality for BPCI patients? Are these different from the important quality indicators for other patients?
3. How do you monitor the quality of care partners provide to your patients?
   a. For hospitals: Do you monitor the quality of care provided by PAC providers?
   b. Is any of this new for BPCI?
4. Are you able to track patient outcomes from one care setting to another?
5. What tools do you use to monitor quality?
   a. Have you faced any technology or interoperability challenges in getting quality measures data from partners?
6. Have you conducted any training about quality for BPCI?
7. Have your staff members received any special training about care quality for BPCI?
8. Do you provide feedback on quality measures to your care teams?
   a. Is feedback provided to your BPCI partners or PAC providers?
9. How has patient education (or family member education) changed as a result of BPCI?
10. Have you noticed a different level of physician engagement since the start of BPCI?
    a. Does the level of engagement differ for BPCI patients versus non-BPCI patients?
11. Is discharge planning different since BPCI was implemented?
    a. Is this different for BPCI and non-BPCI patients?
12. How does your team work with discharge planning to ensure high quality transitions?
13. Please share the experience of a typical BPCI patient (no names please). How is the approach to quality different for BPCI patients?

14. For PGPs:
    a. Do you track individual physician performance on key quality measures?
    b. What feedback data do you give to physicians (benchmarking, report cards) about quality performance? How often?
    c. What data do you share with your partners (hospitals, PACs)?
        i. Are these data risk-adjusted?

B. BPCI Outcomes, Successes and Challenges

1. What impact, if any, is care redesign having on:
    a. Quality metrics
    b. Patient outcomes (e.g., mortality, functional outcomes, readmission rate)
    c. Cost per case
    d. Care transitions with other health providers (hospitals, PAC, primary physicians, etc.)
    e. Use of PAC services (SNF to HHA vs. straight to HHA)
2. How do you ensure that your care redesign approach does not produce unintended consequences?
    a. Adverse patient selection (e.g., cherry picking or lemon dropping)
    b. Inadequate or insufficient care
3. What have been your greatest challenges?
4. Have you seen any unintended consequences from BPCI, either good or bad?
5. Would your BPCI approach work in other places?
6. What lessons do you think we should share with other BPCI participants?

VII. Care Coordination Leadership/Operations (incl discharge/transition planning)

A. The Role of Care Navigators/ Care Coordinators

1. Describe your role in the BPCI program as it relates to:
   a. Patient-level coordination between acute-PAC settings, with primary care, with specialty care
   b. Patient-level case management or navigation
   c. Clinical follow-up with patient
   d. Medication reconciliation
2. Was your role created specifically for the BPCI initiative? If no, how is your role different since BPCI began?
3. What is your role in the broader organization structure? (e. g. are you a hospital employee, contractor, a member of a PGP?)
4. How has BPCI care management and transition planning affected your department's operations? (new staff, new training, new responsibilities or roles for staff?)

B. Care Navigation/Case Management Implementation

1. How do you know if a patient is in BPCI?
2. When do you first "meet" the BPCI patient? How often do you meet or talk with the patient during their BPCI episode?
3. Do you provide them with materials about BPCI to explain the program?
4. Is the approach of the care team different for BPCI patients? How so?
5. To what extent do you interact and communicate with physicians about specific patients' needs – especially about their transitions to other care settings?
6. Are you involved in patient conferences and discharge planning?
   a. How do you identify appropriate PAC settings for BPCI patients? Are there some PAC providers you prefer for BPCI patients?
   b. How to you try to guide patients to the preferred PAC providers? How do you ensure that patient choice is maintained?
7. Did you need to establish new partners internally or in the community as a result of BPCI?
8. Do you have mechanisms to track BPCI patients throughout their episode, such as to inform you when they move from one stage to another (e.g., from SNF to HHA)?

9. [For "mixed-model" programs, those with multiple post-acute options participating in BPCI] How are transitions between PAC providers managed?

10. Please share the experience of a typical BPCI patient (no names please).
    a. How is this different from before BPCI?

11. Given your BPCI care process as described, how would you manage the following situations (as applicable):
    a. A patient/caregiver insists on a last minute change in discharge destination. (e.g., SNF stay instead of HH care) or resists discharge.
    b. A physical therapist raises concerns about the patient's discharge destination.
    c. How is any of this this different for non-BPCI or pre-BPCI patients?

C. Impacts of Case Management Approach

1. What impact, if any, is care redesign and discharge planning for BPCI having on:
    a. Quality metrics
    b. Patient outcomes (e.g., mortality, functional outcomes, readmission rate)
    c. Cost per case
    d. Care transitions with other health providers (hospitals, PAC, primary physicians, etc.)

2. Use of PAC services (SNF to HHA vs. straight to HHA)

3. How do you ensure that care redesign does not produce unintended consequences?
    a. Adverse patient selection (e.g., cherry picking or lemon dropping)
    b. Inadequate or insufficient care

4. Has navigation and case management approaches affected non-BPCI patients? (e.g., spillover, change in resource allocation)

D. BPCI Successes and Challenges

1. What have been your greatest challenges?

2. Have you seen any unintended consequences from BPCI, either good or bad?

3. Would your BPCI approach work in other organizations?

4. What lessons do you think we should share with other BPCI participants?

VIII. Finance Leadership

A. BPCI Entry Determinants

1. Why did your organization decide to participate in BPCI? Were you involved in the decision?

2. What information was used to select the model, episodes, and episode length that was chosen?

B. Financial Results

1. What are your gains or losses to date? What trends have you seen in your financial results?

2. What is driving your gains or losses?

3. Have you made any adjustments to your care processes as a result? Do you anticipate eliminating episodes based on these financial results?

C. Impact of BPCI Participation on Organization's Finances

1. How have you been measuring BPCI's impact on your organization's costs?
   a. What important indicators do you track in regard to the impact of BPCI?
   b. Which specific costs have been affected? (E.g., internal hospital costs, medical devices or supplies, IT system modifications, new hires, contracting with providers)

2. Are you tracking any internal savings from the redesign initiatives?
   a. If so, what have the results been?
   b. Have you seen greater efficiencies as a result of care redesign? If so, where?

3. Have you seen any impact of BPCI and care redesign on your non-BPCI revenues (e.g., MA, Medicaid, private insurance)?

4. What would you do differently in designing a bundled payment program to better meet your organization's needs?

D. Partner Gainsharing (*if applicable*)

1. How does gainsharing work in your organization?
   a. What data sources were used to develop a model?
   b. Were external stakeholders (partners with whom gains are shared) involved in designing the gain-sharing approach?
   c. How are gains allocated? (To the bottom line, to innovative physician practices, to particular staff members)?
   d. Does allocation vary by partner?
2. Did gainsharing go as planned? Any important barriers that prevented you from setting up gainsharing the way you wanted?
3. What is working well with gainsharing as it stands? What needs improvement?

E. Other waivers

1. Are you using beneficiary incentives? If so, what are they?
   a. How many BPCI patients have used these? What has the impact been?
2. Are you using the 3-day SNF waiver?
   a. How many BPCI patients have used these? What has the impact been?
3. Are you using telehealth or other services permitted under BPCI?
   a. How many BPCI patients have used these? What has the impact been?

F. Successes and Challenges

1. What have been your greatest challenges?
2. Have you seen any unintended consequences from BPCI, either good or bad?
3. Would your BPCI approach work in other places?
4. What lessons do you think we should share with other BPCI participants?

IX. Data Management Leadership

A. Data Systems

1. What types of data systems do you use to manage BPCI patients, and how do these differ from the data systems you use for managing other patients?

2. Please describe the data systems used for the following activities:
   a. Gainsharing (or other waiver-related activities)
   b. Quality monitoring
   c. Internal cost calculations
   d. Feedback (or other reporting activities)
   e. Patient data/patient care tracking activities
   f. Data reconciliation among partners
   g. Other care redesign activities
   h. BPCI administrative activities

3. How do you monitor the quality of care partners provide to your patients? PAC providers (downstream from you)? Is any of this different for BPCI?

4. Are you able to track quality measures from one care setting to another, to know how well patients are improving in each setting?

5. What tools do you use to monitor quality (special spreadsheets, EHR customization)? Have you faced any technology or interoperability challenges in getting quality measures data from partners?

6. Are you using existing data resources or did you have to set up new systems for this initiative?

7. How much of the data input or output from these systems is new – didn't exist prior to BPCI?

8. Is all monitoring the same for BPCI and non-BPCI patients? What data do you track only for BPCI?

9. What was involved in setting up this information management approach? (new hires, staff training, new technology)

B. Outcomes

1. What kinds of outcomes have the data tracking processes had on…?
   a. Operations (e.g., saved time, improved efficiency)
   b. Improved clinical outcomes
   c. Costs
2. Have there been any unforeseen consequences or costs of implementing these data system(s)?
   a. High cost of implementation or training?
   b. Difficulty managing change during turnover to new system?

C. Successes and Challenges

1. What have been your greatest challenges?
2. Have you seen any unintended consequences from BPCI, either good or bad?
3. Would your BPCI approach work in other places?
4. What lessons do you think we should share with other BPCI participants?

X. Direct Care Physicians

For hospitals and PGPs, this session would *ideally include at least 1 physician per BPCI clinical episode,* ***such as hospitalists or orthopedic surgeons.***

A. BPCI Entry Decisions and Structure

1. Why did your organization decide to participate in BPCI?
2. Were you involved in selecting the BPCI model and episodes?
3. Are you considering dropping any episodes? If you were able, are there any other changes related to episodes that you would make?

B. Care Redesign Approach

1. How has BPCI changed your approach to care?
   a. Did you add new staff?
   b. Were new care protocols adopted?
   c. Do you hold additional staff meetings
   d. Is case management addressed differently?
   e. Do you have new relationships with other partners in the market?
   f. Other activities?
2. Are care redesign efforts that were planned happening in practice? *Probe on what has been heard from executive leadership and others.*
   a. If not, what are the barriers?
3. Were physicians involved in any of the following aspects of care redesign?
   a. Care pathways
   b. Enhancements in care delivery
   c. Patient engagement
   d. Risk management
   e. Care coordination
   f. Other system changes to support care
4. Were any quality metrics used in care redesign? Did you help select the metrics?
5. Please share the experience of a typical BPCI patient (no names please).

6. Given your BPCI care process as described, how would you manage the following situations?
    a. A patient/caregiver insists on a last minute change in discharge destination. (e.g., SNF stay instead of HH care) or resists discharge.
    b. A physical therapist raises concerns about the patient's discharge destination.
    c. A patient arrives in the emergency department with concerns about his/ her condition (e.g., the appearance of a wound, fever).
    d. How is any of this this different for non-BPCI or pre-BPCI patients?

C. Gainsharing

1. Has gainsharing had an impact on physician engagement and the success of this initiative?
    a. How are gainsharing funds distributed?
    b. Have there been any challenges or unplanned consequences with implementation of gainsharing?

D. Impacts of BPCI

1. What impact, if any, is care redesign and discharge planning for BPCI having on:
    a. Physician interaction with patients
    b. Physician satisfaction
    c. Patient outcomes (e.g., mortality, functional outcomes, readmission rate)
    d. Cost per case
    e. Care transitions with other health providers (hospitals, PAC, primary physicians, etc.)
2. How do you ensure that your care redesign approach does not produce unintended consequences?
    a. Adverse patient selection (e.g., cherry picking or lemon dropping)
    b. Inadequate or insufficient care
3. Has navigation and case management approaches affected non-BPCI patients? (e.g., spillover, change in resource allocation)

E. BPCI Success and Challenges

1. What have been your greatest challenges?
2. Have you seen any unintended consequences from BPCI, either good or bad?
3. Would your BPCI approach work in other places?
4. What lessons do you think we should share with other BPCI participants?

Appendix F: Focus Group Protocols

BPCI Focus Group Interview Protocols

I. Topic 1 for BPCI Focus Groups

A. Summary

Topic 1: Care Redesign Implementation across Multiple BPCI Convener Sites

How is care redesign implemented across episode initiators under a common Convener? What is the role of the Convener across the multiple episode initiators?

Objective: The goals of this discussion group are to: understand how care redesign is implemented across multiple sites under a common Convener and explore the role of the Awardee Convener. Each episode initiator will face different challenges and successes with implementing care redesign. We will explore the variation in the challenges and successes across sites and how they reflect the unique circumstances of each episode initiator. We will examine the value that a Convener adds to the BPCI initiative and discover how each unique site has developed under a common entity.

Participants: The ideal participants for this focus group are clinical staff who supervise care redesign at each site (e.g., nurses, care coordinators/managers, discharge coordinators) and those who are responsible for the BPCI initiative at each site. We will request each site send one individual to the focus group. All participants should have similar levels of responsibility and be able to speak to the implementation of care redesign at his or her site. Participants should also be familiar with Awardee interaction. In addition, we will take into account the number of BPCI episodes initiated at each site to ensure we are only including sites with sufficient experience in care redesign within the context of the initiative.

B. Focus Group Protocol

Care Redesign Implementation under a Convener

AC:
Sites:
Date:
Time:

Introduction (10 minutes)

Thank you for taking the time to join us today. The Lewin Group is under contract with CMS to evaluate the Bundled Payments for Care Improvement (BPCI) initiative. The evaluation includes conducting site visits with health care organizations participating in the initiative. During these site visits, we hold interviews with individuals at each organization who are responsible for different aspects of implementation of BPCI. This effort is to better understand the impact of the BPCI initiative on health care delivery, outcomes, and costs—particularly the challenges and the achievements of BPCI in delivering high-quality and cost-effective care. Our

responsibility is to understand what is working and what is not working under BPCI—we are not evaluating individual sites or Awardees.

As part of this evaluation, our team is also conducting focus group interviews at select sites. Complementing the information gathered through the leadership interviews, these focus groups will allow us to learn about specific topics or issues that could affect implementation of BPCI, particularly important since each site differs in location, market, episode, and patient population.

Our objectives during this 90 minute focus group are to:

- Describe the role of the Convener in care redesign.
- Understand how care redesign has been implemented across multiple EIs under the Convener. Compare and contrast the experiences of different EIs.
- Identify examples of coordination or collaboration across EIs, especially in regard to the actions of the Convener.

With that introduction, let's begin the discussion.

Introduce Lewin/Telligen Staff

Introduce Focus group participants on the call (if applicable)

Topic #1: Implementation of Care Redesign (45 minutes)

As you know, organizations are implementing care redesign for the BPCI initiative in a variety of ways. CMS would like to learn more about the experiences of episode initiators (EIs) operating under a Convener. For these sites, they would like to better understand the similarities and differences related to the implementation of care redesign.

As we understand from your materials, you are organized as episode initiators under a Convener. We will be asking about how you are organized and to what extent you coordinate with the Convener and other episode initiators under the convener.

1. What has been your approach to care redesign under BPCI?
    a. Has your Convener provided any instructions or information on care redesign under BPCI? If so, please describe the information provided and describe your interaction with the Convener.
2. Do care resign efforts at one site relate to care redesign at other Episode Initiating facilities? If so, how?
3. To what extent are individual episode initiators attempting to coordinate with other episode initiators under the Convener? For example, you may have the same general approach to care redesign but may be implementing them differently at individual sites, or you may be attempting to standardize your processes in some areas but not others.
    a. Probe: In what areas are you to coordinating or sharing resources with other EIs?
    b. Probe: Can you talk about how you made these choices about your coordination strategies with other EIs?

4. How do you monitor the implementation of care redesign processes? Does the convener give you any guidance on how to monitor care delivery?
    a. Do you ever meet with Convener representatives to discuss the implementation of care redesign? If so, how frequently?

5. Do your sites share best practices or staff members in regard to care redesign?
    a. If yes, how does this occur? Is this a systematic process implemented by the Convener or has it developed organically?

Topic #2: Lessons Learned (30 minutes)

The latter portion of this discussion will focus on the key successes and challenges you have experienced. We would like to know what worked well, what didn't, and what lessons you have learned during BPCI that you would like to share – not only with your colleagues, but also with other sites under the BPCI initiative that could benefit from your experiences.

1. What have been your successes in regard to BPCI care redesign?
    a. What was the Convener's role in helping you achieve those successes?

2. What challenges did you experience in implementing care redesign?
    a. What was the Convener's role in helping you address those challenges?
    b. What steps did you take to overcome these challenges?
    c. How are your experiences similar to or different from those at other EIs?

3. What are the most important lessons learned from your site?

Closing remarks (15 minutes)

Any closing remarks on topics we did not cover?

This wraps up our discussion for today. Thank you for your participation and for sharing your experience with implementing care redesign under the BPCI initiative. We have taken extensive notes and will incorporate your feedback into the summary of this site visit. Your input will be shared with CMS and will contribute to improving the BPCI initiative. Again, thank you for your time.

II. Topic 2 for BPCI Focus Groups

A. Summary

Topic: Managing the care of BPCI patients in the post-acute care (PAC) setting

Objective: The goal of this focus group is to understand the working relationship between the BPCI episode initiators (EIs) and the PAC providers that accept its patients. Of particular interest are patient tracking across settings, communication, care coordination and case management, and discharge planning.

Participants: The intended participants for this focus group are staff members from PAC providers that work closely with BPCI episode initiators (e.g., acute care hospitals or physician group practices). We will contact these partners to identify the most appropriate participants for the focus group. All participants in the focus group should have similar levels of responsibility and be familiar with the PAC provider's relationship with the EI.

B. Focus Group Protocol

Managing BPCI Patients in PAC Settings

Awardee:
Sites:
Date:
Time:

Introduction (10 minutes)

Thank you for taking the time to join us today. The Lewin Group, in collaboration with our colleagues at Abt Associates and Telligen, is under contract with CMS to evaluate the Bundled Payments for Care Improvement (BPCI) initiative. The evaluation includes conducting site visits with health care organizations participating in the initiative. During these site visits, we interview individuals who are responsible for different aspects of BPCI implementation. Our goal is to better understand the impact of the BPCI initiative on health care delivery, outcomes, and costs—particularly the challenges and the achievements of BPCI in delivering high-quality and cost-effective care. We aim to understand what is working and what is not working under BPCI. We are not auditing, grading, or scoring the performance individual sites or Awardees in any way.

As part of this evaluation, our team is also conducting focus groups at select sites. These focus groups complement the information gathered through the site visits and allow us to learn about specific topics or issues that could affect implementation of BPCI. This aim is particularly important since BPCI sites may differ substantially in regard to geography, local health care markets, episode choice, and patient population.

Our objectives during this 90 minute focus group are to:

- Understand the relationship between BPCI episode initiators (e.g., hospitals or PGPs) and the PAC providers that care for patients
- Understand how EIs have communicated with PAC providers and how BPCI has changed the delivery of post-acute care

With that introduction, let's begin the discussion.

Introduce Abt/Telligen Staff

Introduce Focus group participants on the call (if applicable)

Topic #1: Collaboration with BPCI Episode Initiators (45 minutes)

Organizations that are participating in BPCI often work closely with a number of partners to facilitate effective care redesign. These partnerships can play a crucial role in a BPCI Awardee's care redesign efforts, patient case management, and patients' post-discharge recovery.

One aspect of this partnership can involve the identification and tracking of BPCI patients across multiple care settings, including from acute to post-acute care.

1. Are you informed that a patient is in the BPCI program? If so, how does that occur?

Another important component of this partnership is the collaboration with the BPCI episode initiator(s) regarding patient care.

2. How has collaboration with the EIs changed under BPCI?
    a. How do your staff and the hospital/PGP staff communicate about patients' needs and care plans?
    b. Do you communicate with the EIs about patients' discharge from PAC care?
    c. Who communicates the PAC discharge and transition plan to the patients and their families? How are patients reacting to the discharge/transition plans?
    d. What happens if a patient or caregiver disagrees with the transition plan and discharge arrangements?
    e. Do any of these practices differ from the way things were done prior to BPCI?
3. How has care changed for patients since the hospital began participating in the BPCI initiative? For example, are there more interactions with patients who are part of a bundled episode? Have there been any changes to how therapy is provided to these patients?
    a. If any of these practices changed, who was involved in deciding on the changes, and how did that arrangement come about?
    b. How were the new care plans and therapeutic approaches conveyed to your staff (nurses, physical therapists, etc.)? Were any new trainings offered, new protocols or schedules created, etc.?

Topic #2: Lessons Learned (30 minutes)

The latter portion of this discussion will focus on the key successes and challenges experienced by your site. We would like to know what worked well, what didn't, and what lessons you have learned during your collaboration with BPCI episode initiators that you would like to share – not only with your colleagues, but also with other sites under the BPCI initiative that could benefit from your experiences.

1. What care delivery successes have you experienced at your site in relation to the hospital's participation in BPCI? What was the BPCI hospital's role in those successes?

2. What care delivery challenges did you experience at your site? What was the BPCI hospital's role in helping you address those challenges?
    a. What steps did you take to overcome these challenges?
    b. Did you consult other PAC providers in the area? If so, how do your experiences compare with one another?

3. What are the most important lessons learned from your site?

Closing remarks (15 minutes)

Any closing remarks on topics we did not cover?

This wraps up our discussion for today. Thank you for your participation and for sharing your experience as a PAC provider. We have taken extensive notes and will incorporate your feedback into a summary. Your input will be shared with CMS and will contribute to improving the BPCI initiative.

Appendix G: Interviews with Awardees that terminated BPCI participation

Exhibit G.1: Awardees that terminated participation in BPCI and were contacted for an Interview, 2014-2016

Model	Awardee BPID	Awardee Name
2	2042-000	Physicians of Central Florida
2	2054-001	Bayonne Medical Center
2	2065-001	Maine Heart Center
2	2070-005	Hackensack University Medical Center
2	2077-001	Touchstone Health
2	2078-001	Vanguard Health Chicago
2	2087-000	Centra Health
2	2308-000	Pocono Medical Center
2	2314-000	Harrisburg Hospital, Community General Osteopathic Hospital, and The West Shore Hospital
2	2802-000	Billings Clinic
2	2900-000	SSM Managed Care Organization
2	6245-000	West Houston Medical Center
2	6401-001 (4060-001 previously)	Summa Health Care System
3	3053-001	Optum
3	3053-018	ManorCare Oak Lawn East
3	3057-000	Amedisys
3	3403-001	Premier Health & Rehabilitation
3	3996-000	Stillhouse Rehabilitation and Healthcare Center
3	9009-000	Riverside Health & Rehabilitation Center
3	9600-000	Ensign Services
3	9605-000	Timberwood Nursing and Rehabilitation Center
4	4022-000	St. Luke's Hospital
4	4058-001	Sisters of Charity of Leavenworth Health System
4	4064-001	Abrazo Region Services
4	4067-000	University of Colorado Hospital Authority

Interview Protocol - with Awardees that Terminated BPCI Participation

Thank you for taking the time to talk with us today. We are conducting an evaluation of the Bundled Payments for Care Initiative for CMS. As part of the evaluation of the program we want to learn more from participants that decide to terminate their participation of the program. During this short call, which we anticipate will last about 30 minutes we hope to learn more about your experiences under BPCI, what worked, what ultimately were the challenges, and how you tried to overcome them.

1. **What factors or barriers led to the decision to discontinue participation in BPCI?**
    a. Administrative burden
    b. Leadership involvement (or lack of involvement)
    c. Inability to form or maintain necessary partner networks
    d. Financial losses
    e. Episode selection
2. **Who made the decision to withdraw?**
3. **What would you have done differently if you could start over?**
4. **How could CMS improve the program for current and future BPCI participants?**
5. **Were there any barriers in forming productive relationships**
6. **Were there any** legal/contractual issues related to gainsharing and data sharing?
    a. Data/IT misalignment, inability to reconcile data
    b. Difficulties with TPA or other financial administrative burden?
    c. Inadequate/unavailable software systems for care management?
7. **Were there any barriers to implementing care redesign?**
    a. Leadership involvement
    b. Physician pushback
    c. Care management challenges
    d. Patient/family factors
    e. Inadequate quality metrics
8. **Were solutions attempted to overcome these barriers, or did the cost of necessary changes outweigh potential gains?**

Appendix H: Quarterly Interview Protocols

BPCI Quarterly Interview Protocol

Q2 2015 Quarterly Interviews

Objective: Better understand how Awardees are using the SNF waiver, the relationship between Awardees and SNF partners, and how Awardees have or intend to affect the use of post-acute care.

A. Introductions and Background

1. Introduce Lewin team members on the call
2. Awardee introductions
    a. Please tell me about your current position and your BPCI-related responsibilities.

B. SNF Waiver use

1. Why did you request the waiver of the 3-day hospitalization requirement for SNF coverage?
    a. Do you have experience using it under other circumstances (e.g., Medicare Advantage, Pioneer ACOs)? If so, can you describe your experience?
2. Waiver use
    a. How much are you using the waiver? Roughly what proportion of your patients discharged to a Medicare-covered SNF stay had a hospitalization of less than 3 days?
    b. How do you decide which patients can be discharged in less than 3 days to a SNF?
        i. Which episodes are you likely to target for shorter hospitalizations prior to SNF?
        ii. What is your protocol for determining who should have a shorter inpatient stay under the waiver?
        iii. Are the patients with the short inpatient stays more likely to have been living in a nursing home prior to their hospitalization?
3. Do you encourage your patients to choose particular SNFs when discharging them after a short hospitalization? If yes, what are the characteristics of those SNFs?
4. How do you monitor your patients who are admitted to a SNF? Does this differ for patients admitted after a short inpatient stay under the waiver?

5. Do you think Medicare should change its policy and allow Medicare SNF coverage following a hospitalization of less than three days?
    a. Would this lead to lower cost episodes?
    b. Is the SNF length of stay or intensity of service use higher in these cases?
    c. Do you think this policy could increase hospital admissions of patients who could have been treated in the nursing facility or at home?
    d. Have you identified any negative effects of waiver use?

C. Relationship with SNF Partners

6. SNF Partners
    a. What are your criteria for choosing SNF partners?
        i. Does your choice of partners/criteria for selecting partners vary by episode, and if so, how?
    b. What role has gainsharing played, if any, in your choice of partners?
    c. What is the organizational relationship between you and your partner SNFs?
7. How are you communicating to SNFs when a patient is in a BPCI episode?
8. How/when do you monitor partner SNFs' star ratings?
    a. A SNF waiver adherence rule is that 50% of the patients admitted to a SNF under the waiver are sent to a 3-star (or above) rated SNF. When do you identify (i.e. for what month) the star rating at the time of admission?
    b. What has been the impact of changes to the star rating methods in Feb 2015 on selecting your SNF partners, if any?

D. Post-Acute Care Decision Making

9. Thinking beyond use of the SNF waiver, how are you deciding which patients to send to which PAC facility?
    a. Do you have protocols for determining when patients should be discharged to a particular PAC facility?
    b. Have you implemented any care redesign that helps you decide to send patients home with home health instead of to a SNF (or other PAC facility)? If so, was this always part of your care redesign plan, or did this evolve over time?
    c. What patient or episode-specific factors do you consider during discharge planning?
    d. If there are multiple EIs in your Awardee structure: Do you share this guidance across all EIs?

BPCI Quarterly Interview Protocol

Q3 2015 Quarterly Interviews

Objective: Better understand what is driving post-acute care (PAC) use, the impact of care redesign interventions on PAC utilization, and successes and challenges in changing PAC use among Model 2 and 4 Awardees.

A. Introductions and Background

1. Introduce Lewin team members on the call
2. Awardee introductions
    a. Please tell me about your current position and your BPCI-related responsibilities.

B. Care Redesign Efforts to Impact PAC Use

1. Have you implemented care redesign interventions specifically targeted at reducing PAC use or moving to more efficient PAC services?
    a. Were these interventions developed specifically for BPCI?
    b. Do you have protocols for determining when patients should be discharged to a particular type of PAC facility?
    c. Do you have distinct strategies to guide PAC use depending on the patient's episode/DRG?
        i. Besides DRG, what other factors are considering in determining the best PAC options for the patient?
    d. To what extent do you educate patients on their PAC options?
2. Are PAC partners integrated into the implementation of your care redesign activity plans?
    a. [*If yes*]: What role do PAC partners play in your care redesign efforts?
    b. How closely do you monitor PAC partner activities?
        i. Do you have an employee, such as a patient navigator or care coordinator, who checks in with PAC providers on patient status? Do these employees attempt to influence the PAC length of stay?
            1. [*If yes*]: Is this new to BPCI or something you have always done prior to BPCI?
            2. Have these strategies influenced the behavior of the PAC facilities?
        ii. Are you able to influence PAC behavior?
3. Does the implementation of care redesign interventions for PAC utilization differ from your planned approach? Are you planning on changing your approach to PAC utilization?

4. Is waiver use an element of your care redesign efforts to transform PAC utilization?
    a. Are you gainsharing with PAC providers? How important is gainsharing with regards to changing PAC partner behavior?
    b. How important are beneficiary incentives in reducing the need for and use of PAC services?
    c. Have you utilized the 3-day stay waiver for Medicare-covered SNF stays? Is this waiver used impact overall PAC use? Have you observed any improved outcomes for beneficiaries?
    d. Do you think you could influence PAC utilization as you have described without the ability to use any or all of these waivers?
5. What successes and challenges have you experienced when implementing PAC-focused care redesign interventions?
    a. Are partnerships with PACs contributing to successes and challenges? How so?

C. PAC Utilization during BPCI

6. Has your care redesign regarding PAC utilization resulted in a change in PAC utilization during BPCI?
    a. [*If yes*]: How so? Why do you think this is?
    b. Has the change in PAC utilization varied by clinical episode?
7. Do you collect and analyze data on PAC use? If so, how?
8. Do you monitor patient status while at a PAC facility? If so, how?
9. Have you noticed:
    a. Changes in patient outcomes?
    b. Cost-savings that could be attributed to changes in PAC utilization

BPCI Quarterly Interview Protocol

Q4 2015 and Q1 2016 Quarterly Interviews

Objective: To better understand the decision of physician group practices (PGPs) to enter BPCI, the organizational arrangements and partnerships PGPs have with other entities (such as with the facilities at which the BPCI episode is initiated, Conveners, and third party contractors), and successes and challenges PGPs have experienced during BPCI.

A. Introductions and Background

1. Introduce Lewin team members on the call
2. Awardee introductions
    a. Please tell me about your current position and your BPCI-related responsibilities.

B. PGP Characteristics

1. What is the specialty mix of the practitioners at your PGP?
2. How many non-physician clinicians work at the practice?
3. Does your practice have multiple locations?
4. How long has your practice been in business?

C. Entry Decision

5. What attracted you to the BPCI initiative? Who was involved in the decision to participate?
6. Why did you choose to join as your participant type?
7. What factors influenced your decision to enter the initiative when you did?
    a. What, if any data did you analyze or find most useful when making the decision to join BPCI?
    b. Was participation in BPCI tied with other organizational changes?
8. How did you select the Model in which you are participating?
9. How did you select the BPCI DRGs in which you are participating?
    a. Do you admit patients to hospitals for DRGs other than the BPCI DRG(s) you are participating in?
10. How did you prepare to join BPCI prior to your start date?

11. How did the opportunity to use waivers (e.g., gainsharing, three-day hospital stay waiver for Model 2 EIs, beneficiary incentives) impact your decision to join the BPCI initiative?

D. Organizational Arrangements and Partnerships

12. Please describe any arrangements with the facilities at which your BPCI episodes are initiated.

13. Please describe any arrangements with PAC providers to which patients are discharged.
    a. If you have specific arrangements or partnerships with PAC providers, what were the criteria for selecting those partners?
    b. What role do you play once patients are discharged from acute care? How involved are you during the post-discharge period?
    c. What strategies are you using to influence PAC use?

14. Please describe any arrangements you have with third party contractors. For example, do you have agreements with data analysis consultants, financial consultants, or IT vendors?

15. [For PGPs under a Convener] Please describe the functions performed by your Convener.
    a. Does your Convener offer certain supports or assistance that would otherwise be provided by third party contractors?
    b. Did these services influence your decision to join BPCI under this convener?

16. How would you describe the stability of physician and other practitioner employees in your PGP over time? Have you experienced changes in the mix or size or practitioners within your PGP due to BPCI?
    a. Has participation in BPCI been a method to bring in more practitioners or has it deterred practitioners from joining your group?

17. How do you expect practice patterns to change due to BPCI (e.g., will there be greater standardization of procedures, are referral patterns changing, etc.)?

18. What are the benefits and challenges of the PGP structure you have experienced as they relate to the BPCI initiative?

BPCI Quarterly Interview Protocol

Q2 2016 Quarterly Interviews

Objective: Understand how care redesign is implemented, and what cost-saving strategies are employed by Model 3 Awardees under the BPCI initiative.

A. Introductions and Background

1. Introduce Lewin team members on the call
2. Awardee introductions
    a. Please tell me about your current position and your BPCI-related responsibilities.

B. Care Redesign Efforts

1. Have you changed the way you deliver care since you joined BPCI? If yes, please briefly describe these changes.
2. Can you identify which of your patients are in BPCI?
3. Are your care redesign efforts the same for all patients regardless of bundle, or are there aspects of BPCI care redesign that are specific to certain bundles?
4. What is your discharge planning process? Has this changed since you joined BPCI?
    a. Does discharge planning vary by bundle? By other patient characteristics?
    b. What determines when a patient can be discharged home?
    c. Are you in contact with patients after they are discharged from your facility?
    d. Do you collect and analyze data on patient outcomes after discharge?
    e. Who communicates the PAC discharge plan to the patients and their families? Please describe this process.
        i. What happens if a patient or caregiver disagrees with the discharge plan?
    f. If a patient contacts your facility after discharge and reports they are getting worse, what is your role?
        i. Are patients ever re-admitted directly to your facility?
5. Have you used any strategies to reduce readmissions? If so, have they been successful?

6. Do you coordinate care with other health care providers or community organizations? If so, please describe these partners.
    a. Do you have any "preferred partner" organizations that you work especially closely with, even if they are not directly involved in your care redesign?
7. Has the severity or complexity of your patients changed since joining BPCI?
8. What challenges or successes have you faced when implementing care redesign under BPCI?
    a. How are you responding to these challenges?
    b. What role have your partners (i.e., hospitals, PGPs, other PAC providers, community partners) had in helping you address those challenges?
    c. What unintended consequences have you experienced as a result of BPCI?

C. Cost-Saving Strategies

9. What strategies are you using to achieve cost savings?
10. Have you been successful in reducing costs for your BPCI bundles?
    a. How do your savings under BPCI compare to what you expected?
11. SNFs only: How does the NPRA from BPCI compare to your daily per diem reimbursement?
    a. If you reduce length of stay to create savings in BPCI, how does that impact your total revenues?
    b. Have you experienced a higher rate of patient turnover since joining BPCI? If so, what strategies have been used to increase or maintain patient volume?
12. Please describe any challenges so far in your cost savings efforts.
13. Are there any other successes related to cost savings that we have not yet discussed?

D. Gainsharing

14. Do you participate in gainsharing for BPCI?

E. Successes/Challenges

15. Have there been any policy or regulatory changes for your facility type that have impacted your BPCI performance? If so, what were they and how did they affect you?
16. What lessons would you want to share with another Model 3 BPCI participant?

Appendix I: Technical Expert Panel (TEP) Summaries and Panelists

I. Major Joint Replacement of the Hip and Knee

A. Summary Report

Date:	May 6, 2015
Facilitator:	Christine LaRocca, MD
Participants:	James Cobey, MD; Joseph Ouslander, MD; Jennifer Stevens-Lapsley, PhD; Trudy Mallison, PhD; Tad Mabry, MD; Cindy Krafft, PT; Joan Marren, RN; Anne Deutsch, PhD

Topic / BPCI Finding	Questions to Panelists
SNF and HHA use: Relative to a comparison group, BPCI patients: ■ were discharged less often to a SNF (Model 2). ■ had shorter lengths of stay in SNF (Models 2 & 3). ■ had increased use of HHA services (Model 2).	■ Which patient populations may be particularly susceptible to suboptimal outcomes with these care patterns? ■ What unintended consequences should we be aware of, and how might we measure them? ■ What should we look for with respect to functional outcomes given the different capabilities of these settings?

Results

Susceptible patient populations and unintended consequences:

- The concern about cherry-picking is valid. Surgeons could stop doing surgery on higher risk, "more difficult," cases, such as patients with obesity or diabetes.
- Geographic factors influence SNF referral decisions. In some small communities, a SNF stay is a given. Coordinating care is challenging 1) if the orthopedic program cares for patients coming from far away for surgery and 2) if the hospital deals with hundreds of SNFs versus two or three.
- Patients without social support, although difficult to measure in claims, are particularly susceptible to suboptimal outcomes. Those who live alone or are unmarried may be at higher risk and are more likely to go to a SNF.
- Another relevant factor is comorbidities. Patients undergoing elective and non-elective hip replacement differ considerably.
  - Elective THRs and non-elective THRs as a result of a fracture are two different diseases. Non-elective procedures as a result of falls are often secondary to uncontrolled comorbidities such as diabetes, heart failure, COPD, dementia, musculoskeletal conditions, and neurodegenerative conditions.
  - For many patients undergoing non-elective hip replacement, it is not safe or feasible to go directly home to be managed in a home setting. The risks stem from the fact that their comorbidities are not well controlled and, because of these comorbidities, patients may not be fully rehabilitated. The unintended consequences include unnecessary readmission, ED visits, further falls with injury, and poorer functional outcomes.
  - Although difficult to measure with claims data, it is important to know to what extent the comorbidities are controlled and the severity of the disease.
  - Postsurgical anemia and cognitive problems with executive functioning are examples of conditions that may require an inpatient post-acute setting.

Functional outcome measures by setting:

- It is important to look at a patient's function in their own home. The panel generally agreed that, when possible, the best site of care is home. The main issues to consider are the adequacy and safety of the home environment. The home environment provides the truest picture of functional outcomes. Measuring functional outcomes at the end of a SNF stay may not give a true picture of what a patient can or cannot do at home. Examples given included meal preparation and the performance on stairs and steps at home.
- The data showed increased use of HHA services relative to a comparison group.
  - Panelists asked: "Does this mean an increased number of visits and an increased number of therapy visits?" We should look to see if there is an increased intensity and number of visits by HHA.
  - The notion that therapy can be provided daily in a SNF but cannot be provided daily by a HHA is archaic. HHAs can see patients daily; nothing prohibits daily visits.
  - We should analyze outcomes and patterns of care separately for elective versus non-elective THR. In terms of function, it is important to look at self-care and mobility separately. Home Health (HH) care does not always provide much occupational therapy (OT) for THR patients.
- An objective follow up measure of functional outcome after TKR is Range of Motion (ROM). Patients often need supervision to ensure they are moving the knee, and if ROM isn't restored in three to four weeks, the patient may never get it back. The group did not unanimously agree about using ROM as the sole point of emphasis; ROM does not predict long-term outcomes.
- Using an arbitrary gait distance as a primary outcome measure was not recommended. The Care Tool listed a gait distance of 150 feet; however, this distance is not a realistic for a patient to function well in the home or community environment.
- Gait speed was favored as an outcome measure across all facilities and was noted to predict mortality and institutionalization.

Topic / BPCI Finding	Questions to Panelists
SNF v. IRF recommendation	▪ What are the factors you consider when you recommend discharge to an IRF?

Results

- The quality of care in both SNFs and IRFs ranges widely. Some enrollees in alternative payment models are developing "super" SNFs.
- The decision of IRF versus SNF is often based on the admission criteria of the individual facility, insurance coverage, and geographic availability rather than being solely based on a provider's order.
- A Medicare Payment Advisory Commission report found comparable costs between IRFs and SNFs, largely due to shorter Length of Stay (LOS) in IRFs. Studies found comparable outcomes between IRFs and "good" SNFs. However, the literature does not represent the universe of SNFs. Many of the studies include data from self-selected SNFs.
- Many physicians and providers do not know the difference between SNFs and IRFs.
- TJR patients with complicating rehabilitation problems, such as preexisting stroke or coexisting rheumatoid arthritis, would potentially benefit from an IRF setting, acknowledging that the patient must be able to tolerate and cooperate with the required number of hours of therapy per day. Comorbidities sometimes limit a patient's ability to participate in therapy in the IRF setting.
- Given that IRFs have 24 hour per day physician coverage, patients who really need an IRF have complicated additional needs that require ongoing medical care.

Topic / BPCI Finding	Questions to Panelists
Physical Therapy: No physical therapy after hip replacement (Model 2)	▪ For which patients might this always or never result in a good outcome? ▪ What unintended consequences should we be aware of, and how might we measure them? ▪ What less invasive hip procedures, such as anterior hip replacement, might we see in the claims data now and in the near future? ▪ When were they developed and how frequently are they performed?

Results

Outcomes and/or unintended consequences:

- Typical practice was generally described a one to three PT sessions while in the hospital after elective primary THRs, with the vast majority of patients not receiving ongoing outpatient PT. Patients with an elective primary THR (no including revisions or fractures) typically receive preoperative education, are seen multiple times by PT during their two to three nights in the hospital, receive a care plan upon discharge, and do not receive ongoing outpatient PT unless they request it or have safety issues. Post-hospital therapy may be underutilized for a subset of patients. It was stated that patients do not need a lot of therapy so much as motivation.
- The lack of ongoing outpatient PT raised concerns among some panelists, who noted that education is important to encourage patients to move and to restore a normal movement pattern. Long-term problems can develop outside of the 90-day postop timeframe, such as asymmetry, low back pain, and decreased muscle strength.
- An interesting discussion ensued related to the benefits of OT to help patients integrate hip precautions into their self-care and home routine. However, OT is not routinely ordered post THR because the PT provides the necessary patient education. The need for OT was championed and it might be a marker of best practice.
- Given the difficulty for inpatient staff to anticipate needs in the home environment, one to two HH therapy visits were viewed as an "ounce of prevention" in order to identify problems and to provide baseline education related to red flags.

Less invasive procedures:

- The discussion of less invasive procedures focused on anterior hip replacement. Anterior hip replacement is not a fad and is probably here to stay. It is more technically demanding and is applicable to a smaller subset of the population. There is less room for error and the risks include early loosening and intraoperative fracture.

Topic / BPCI Finding	Questions to Panelists
Preoperative programs: ■ Patients are encouraged to participate in a "Pre-hab" exercise program (Model 2). ■ Patients are required to attend mandatory total joint replacement education classes (Model 2).	■ Taken individually or in combination, are these exercises and educational programs important contributors to high quality outcomes? ■ Is the requirement to participate a subtle form of cherry picking?

Results

Contribution to outcomes:

- Preoperative education is an important contributor to high quality outcomes. It may be provided in a variety of formats: a 1:1 session, in a class, or via internet offerings. Kaiser Permanente's mandatory preoperative classes were described as valuable for increasing patient awareness, clarifying patient expectations, and helping patients prepare. In the class or group setting, patients can learn from each other's questions. Prehab or preoperative PT was not viewed as effective in patients with end stage osteoarthritis.
- HHAs are capable of offering prehab exercise programs in the home but have concerns related to potentially violating anti-kickback laws. Since the patient is not technically admitted to HH at the time of the provision of prehab services, the services are provided at no cost. This can be viewed as offering this service as an inducement to receive the referral. Question: If offered as part of the BPCI payment model with the HHA being compensated, and the patient still has the right to choose the HHA, is this acceptable? I offered to take this question back to Lewin/CMS, and then come back to the panelists with an answer, but noted that I did not think participating in BPCI altered in any way the need to operate under the anti-kickback regulations. Note: Model 2 does not begin until admission for the inpatient stay. Therefore, pre-hospitalization programs of any kind are not part of BPCI. Therefore, all existing statutes, regulations, etc. would apply to such programs provided prior to hospital admission.
- Presurgical PT for targeted strengthening can be valuable for selected patients. More complicated patients (such as those with multiple comorbidities, poor preop ambulation, etc.) for whom surgery is offered for pain relief will achieve functional milestones at a lower level and at a slower pace. Knowing the type of prehab these patients should engage in and determining how much it will help them improve is a challenge. The challenge of identifying patients in a clinic setting for preoperative physical rehabilitation, and getting reimbursed for this prehab was described.
- The literature shows prehab and education have some benefit. However, it is not one size fits all. "We want one model but the issue is more nuanced than that." Some patients benefit from education, some benefit from prehab, and some will not remember the instruction until it is offered postoperatively.

Cherry picking:

- While one panelist was aware of programs having a mandatory class attendance requirement before surgery could be scheduled, this probably occurs in a minority of programs. More commonly, the class is strongly suggested. Measuring the effect of the class itself is difficult. Some patient populations have challenges completing prehab exercise programs. Those with mobility issues and those who are homebound preoperatively would be unable to attend.

Topic / BPCI Finding	Questions to Panelists
ED visits: Increased ED visits without hospitalization within 30 days of discharge for BPCI patients (Model 2).	▪ It is possible that some of these visits are planned? ▪ What do you think about planned ED use as part of care redesign? ▪ How do you interpret this finding of increased ED visits?

Results

Planned ED use:

- Some programs try to drive down LOS with outpatient joint replacements by having the care plan instruct patients to go to the ED if they have a problem with pain. The ED visit is, therefore, partially planned. Patients having trouble with pain control can receive intravenous narcotics in the ED either after hours or even during business hours, since these medications cannot be given in clinic.
- Planned ED use might be also be appropriate for postoperative anemia, which is common in patients after nonelective hip replacement. Patients cannot always receive transfusions in outpatient clinics.

Interpreting ED findings:

- Panelists shared the view that ED use should be monitored in BPCI. A spike or increase in ED use may suggest that LOS has been lowered too much.
- The reasons and timing for the ED visit are important data element to capture. This information will assist the interpretation of the increased ED use seen in the early data.
- Classifying the reasons for the ED visit as avoidable or unavoidable was also suggested.
- In the HH setting, physicians still tend to send all patients to the ED upon being called by the HH nurse, described as a "knee jerk" response.
- A paper was cited indicating that HHAs with ready access during non-business hours to a physician had decreased readmission rates and decreased ED visits. The patient population in this study was not limited to TJR patients. Ready access to a physician during nonbusiness hours is a recommended practice so that access to a physician is not a barrier for HHAs.
- Payment issues for HHAs and SNFs related to long and complex observation stays were discussed.

B. Panelists Names and Titles

James Cobey, M.D., Board Certified Orthopedic Surgeon; President of the Medical Society of the District of Columbia,

Anne Deutsch, PhD, Certified Rehabilitation Registered Nurse with a doctoral degree in Epidemiology and Community Health; Senior Research Public Health Analyst at RTI International; Clinical Research Scientist at the Rehabilitation Institute of Chicago's Center for Rehabilitation Outcomes Research; Research Assistant Professor in the Department of Physical Medicine and Rehabilitation in Northwestern University's Feinberg School of Medicine

Cindy Krafft, PT, MS, President for the Home Health Section of the American Physical Therapy Association

Tad Mabry, M.D., Assistant Professor of Orthopedic Surgery at the Mayo Clinic College of Medicine; Consultant of Adult Reconstruction at the Mayo Clinic; Diplomate of the American Board of Orthopedic Surgery; Member of the American Association of Hip and Knee Surgeons

Trudy Mallison, PhD, Visiting Associate Professor in the School of Medicine and Health Sciences at the George Washington University; Office for Clinical Practice Innovation

Joan Marren, RN, MA, MEd, National Consultant in health care strategy and practice, primarily focused on home and community-based services; Founding member of Quadrant Consulting, LLC (partnership of four experienced leaders in Home Care and Hospice services)

Joseph G. Ouslander, M.D., Professor and Senior Associate Dean for Geriatric Programs at the Charles E. Schmidt College of Medicine at Florida Atlantic University and Professor (Courtesy) at the Christine E. Lynn College of Nursing at FAU

Jennifer Stevens-Lapsley, PhD, Associate Professor in the Physical Therapy Program at the University of Colorado Anschutz Medical Center

II. Heart Failure (HF)

A. Summary Report

Date:	April 12, 2016
Facilitator:	Christine LaRocca, MD
Participants:	Anne Deutsch, RN, PhD, CRRN; Kumar Dharmarajan, MD, MBA; Edward Havranek, MD; Cindy Krafft, PT, MS; Trudy Mallison, PhD, OTR; Joan Marren, RN, MA, M.Ed; Kathleen McCauley, PhD, RN; Michael Rich, MD

Topic / BPCI Finding	Questions to Panelists
Quality outcomes: Relative to a comparison group, BPCI patients had no significant changes at 30 or 90 days after anchor hospital discharge in: ▪ Emergency department (ED) utilization ▪ All-cause mortality rate ▪ Unplanned readmission rate	▪ Does this surprise you? ▪ What, if anything, works for readmission reduction in HF Medicare Fee for Service (FFS) patients? ▪ What do you want to make sure we know/CMS knows about this population of patients?

Results

Patient-centered care:

- Rather than providing greater HF-specific care, interventions to reduce HF readmissions generally entail providing a greater intensity of patient-centered services, such as home visits and use of multidisciplinary teams, and is necessary to lower readmissions in HF patients because these are older patients with a range of conditions. Panelists noted that it is often very difficult for providers to generate the resources necessary to provide higher intensity care.
- Looking at a person with HF holistically and managing the interplay of comorbid conditions aids in identifying services necessary to reduce readmissions.
- In HF patients, two-thirds of readmissions are for conditions other than HF. Most readmission reduction programs primarily target heart failure readmissions, and there is very little evidence from clinical studies on the impact of targeting comorbid conditions during the early follow-up period to see whether or not you can further reduce readmissions. There are on-going studies that are addressing this point.
- Psychosocial issues, including social isolation and poverty, are important contributors to readmissions and are much more refractory to intervention.

Care redesign strategies:

- The practice of performing a root cause analysis for every readmission was promoted to determine the cause of the readmission and to identify what can be fixed. The importance of performing a root cause analysis was highlighted by the following example related to medication nonadherence: The patient who cannot afford their medications and as a result doesn't take them, was contrasted with the patient who cannot adhere to his/her medication regimen because of cognitive impairment. These two patients require very different interventions to prevent readmission.
- Reviewing admissions and readmissions with the people who are delivering service outside the hospital as well as the people who are responsible for discharge planning within the hospital was emphasized. For every case, the team should ask: "what happened, what system or process failed, and what system or process could be improved within the community setting or within the inpatient setting to contribute to a smoother, more successful transition?"
- The importance of palliative care, and knowing when and how to provide it, was emphasized by panelists to improve care and reduce avoidable readmissions. Appropriate and timely use of hospice care was also recommended.
- The emergency department (ED) plays a critical role in prevention of readmissions. It is essential to involve ED staff in planning and implementing interventions aimed at preventing readmissions, improving clinical outcomes, and reducing costs. Data show that once a patient arrives in the ED with a presumptive diagnosis of HF, the likelihood of admission (including observation stays) exceeds 80%. Yet, 25-50% of these admissions could be avoided with optimal management in the ED and close follow-up after discharge from the ED.

Readmissions rates trends:

- National readmission rates for HF were noted to have significantly dropped from April 2010 to October 2012. Of note, the Affordable Care Act passed in 2010 and included reduced payments to Inpatient Prospective Payment System hospitals with excess readmissions, effective for discharges beginning on October 1, 2012, as part of the Hospital Readmissions Reduction Program. From October 2012 to the present day, there has been only a slight decline in the readmission rate. As BPCI started after the readmission penalties were effective in October 2012, it was questioned whether HF readmissions had already been reduced as far as possible.
- It was noted that "low hanging fruit" related to HF readmission reduction had already been addressed, and efforts to further reduce HF hospitalization should focus on more complex issues such as the interplay of multiple comorbidities and psychosocial issues that contribute to lack of stability and frequent readmissions to the hospital.
- Noting the unchanged readmission rate, one panelist observed that BPCI participants may maintain the same number of readmissions but each readmission may be occurring at a lower cost.
- One panelist was not convinced that readmission is a particularly important outcome. He noted that it is important with regard to the cost of care, but as a physician, the panelist stated that his first job is to make sure that the overall health status of the patient is optimized and readmission is a small part of that. In general, panelists were not surprised that readmissions were not reduced by BPCI participants. It was noted that scaling HF interventions, such as disease management programs, from randomized clinical trials to the broader population has not worked well.

Topic / BPCI Finding	Questions to Panelists
Utilization of services: Relative to a comparison group, there were no significant changes in: ■ Acute Inpatient Care Length of Stay (Model 2) ■ Number of Institutional Days ■ Number of Skilled Nursing Facility (SNF) Days ■ Number of Home Health (HH) Visits (Model 2 and Model 3-SNF) ■ Percent of Episodes Discharged to Post-Acute Care (Model 2) ■ Percent of Episodes Discharged to an Institution out of Those Who Received Any Post-Acute Care (Model 2) ■ Hospice use	■ Providers have incentives to reduce service use for the hospitalization and 90-days thereafter; from these results, nothing appears to be changing. What factors may explain these findings?

Results

Improvement vs maintenance or palliative care:

- Improvement in function for certain HF patients may not be feasible. Stabilization of function is a desirable outcome and the importance of maintenance therapy was discussed. When improvement is not possible, it was noted that therapists need to understand their role and the stabilization goal.
- Measures in a variety of post-acute settings report and track improvement, without recognition that a patient can either improve, stabilize, or decline. Providers may expend considerable effort to prevent decline, and yet stabilization and decline are reported ("lumped") in one category. The following example was provided: One agency has 50% of patients with improved upper body dressing and 50% with decline; this was contrasted with the very different outcome of an agency with 50% improvement, 40% stabilization and 10% decline. However, public report cards would only reflect the 50% improvement; the implication being that the report cards do not allow us to differentiate these agencies from one another.
- Rehabilitation settings and providers are at a strategic disadvantage, according to one panelist, because the reported metrics for these settings are tied to patients getting better, which can inadvertently impede an appropriate conversation about palliative care or hospice.
- Maintenance therapy, particularly in the HH setting, was noted to be underutilized. This underutilization was attributed to fear of payment denial because in the past, maintenance therapy was felt to be unallowable. "The issue is that we're still trying to undo the damage of many years of therapy services functioning under the [premise that the] patient 'has to be improving or you will get a denial'."

Coordinating care:

- The importance of finding out if there is a caregiver, family member, or someone else who can actively be involved as part of a caregiver network was emphasized. These networks can help socially isolated and/or cognitively impaired patients manage a condition as complex as heart failure.
- Panelists asked: "For those BPCI participants who have narrowed their network to preferred SNFs/HH agencies, can we analyze the utilization and quality outcomes from these preferred providers?"
- Panelists raised the possibility that the lack of change in post-acute care utilization could be related to poor communication between the hierarchy of administrative people that are agreeing to participate in BPCI with the practitioners on the front lines taking care of the patients. Practitioners may not know their organization is participating in BPCI, and so may be unaware of the initiative's purpose and their options within it.

Diving deeper into the data:

- Panelists noted there is a lot of variability in services rendered by SNFs and HH agencies. Panelists were interested in additional data, such as therapy costs, to indicate the services delivered by these providers. For those patients that go to a SNF, panelists remarked that it makes sense to look at what happens in the SNF. Reviewing SNF therapy costs may help determine if the focus is rehabilitation versus SNF care that was described as "a holding pattern." Patients need to be able to manage their own care and must have systems in place to help them develop and sustain skills for long term management.
- Panelists inquired if BPCI participants with reduced utilization might possibly be canceled out by those participants with higher service use, resulting in this overall finding of no significant change. Panelists asked: "Can we identify via subgroup analysis certain types of organizations, such as highly integrated health systems, that are experiencing reductions in service use for the hospitalization and 90-days thereafter? If so, what interventions are they implementing that may account for their decreased utilization?"

Topic / BPCI Finding	Questions to Panelists
Incentives within the bundled episode of care: Providers have incentives to reduce service use for the hospitalization and 90-days thereafter.	▪ How would you, as a clinician, respond to the BPCI incentives to manage and coordinate care for HF patients within a bundle lasting 90 days, in the inpatient setting and in the outpatient/post-acute care setting? ▪ What behaviors should or could the 90 day bundle length incentivize?

Results

- An important mechanism for improving the coordination of care for HF patients over a 90 day period is increased interaction with the healthcare team. More frequent interaction with the HF patient was emphasized and includes a follow-up phone call within 24 hours of going home, ensuring that patients understand their medicines and are able to care for themselves or have someone available who can assist them. More frequent follow-up visits and contacts could facilitate improved outcomes, not just in the 90 day period but for a prolonged period of time. This increased contact is ideally provided by a team led by a HF nurse, such as a nurse practitioner, or someone knowledgeable in the management of HF with the authority to make changes in management. The importance of having one person who is accountable for the care coordination was noted.
- One panelist offered a dissenting view to the benefits of more frequent contact and cautioned "visits beget visits." This panelist indicated there is literature to suggest that the more often patients are seen, the more likely they are to be sent to the ED by clinicians, and given follow-up visits and referrals related to issues for which the patient normally would not have sought attention.
- Obtaining maximum benefit from the index hospitalization was offered as an alternate strategy by one panelist, indicating that a few extra days in the hospital can result in reduced needs for outpatient care and readmissions. The downside from a longer hospital length of stay is additional deconditioning resulting in delays in recovery.
- Cross-setting collaboration with deliberate and disciplined communication was recommended.
- Although the data is not robust, one panelist advocated for making the experience of hospitalization more humane. More sleep, less bright lights, reduced noise, and early mobilization were mentioned to reduce the stress of hospitalization and aid with recovery after discharge. Patient experience surveys may be a potential source of information to capture the stress of hospitalization.
- Hospital at home programs were recommended, with one panelist suggesting that as many as half of the people that are hospitalized with HF could be managed at home. Management at home would avoid many of the hospital-related stressors previously discussed.
- One panelist recommended holding the hospital accountable for HF patients' ability to demonstrate skills to independently manage their own care, rather than simply verbalize understanding. Utilization of a simulation lab for this purpose was suggested.

Topic / BPCI Finding	Questions to Panelists
Home health utilization and quality outcomes: Relative to the comparison group, BPCI patients saw: ■ A decline of 3.76 HH agency visits during the 90 days after the episode start ■ No change in measured functional status outcomes save for a statistically significant improvement in upper-body dressing, a measure of self-care function (source=OASIS data)	■ As clinicians and experts, we are interested in your views related to this finding. ■ During our site visits and when conducting focus groups, what questions should we pose to explore this practice pattern change in HH agency visits?
Results	
■ Panelists noted that this is a difficult result to evaluate; one commented that improved upper body dressing is "an odd thing to come out as statistically significant." ■ To better explore this finding, panelists asked if there was a change in the mix of HH agency visits, such as increased therapy (occupational and physical therapy), compared to nursing visits or use of telehealth.	

Topic / BPCI Finding	Questions to Panelists
Cardiac Rehabilitation (CR): For BPCI HF patients relative to a comparison group, there were no significant changes in Cardiac Rehabilitation (CR) utilization (all models) in the 90 days after anchor hospitalization discharge.	CR is reported to improve functional capacity and reduce mortality, readmissions, and costs, representing a seemingly attractive intervention for BPCI participants. Help us better understand the reasons CR utilization did not increase in this Medicare FFS population.
Results	
■ Panelists pointed out that patient attendance, and not physician referrals to CR, is measured by claims. Our data is dependent on HF patients following through and attending CR. ■ Among cardiologists, there is some skepticism about the magnitude of CR benefits. ■ There is also skepticism about benefits from CR that would accrue within a 30, 60 or 90 day bundle length, noting that HF patients are not eligible for CR under Medicare until six weeks after hospital discharge. ■ Not every hospital has a CR program; therefore, there are access issues to consider. ■ CR programs may have capacity issues. Physicians who want to refer more HF patients to CR may find that the physical and personnel capacity is limited. ■ Logistical barriers exist in an elderly HF population. Panelists noted that elderly HF patients may not be able to independently drive to CR three times per week. ■ Panelists questioned whether a decision to enter into BPCI at an institutional level filters down to real changes in practice. Panelists expressed doubt that major system realignment occurs for BPCI incentives, particularly if the realignment is associated with higher upfront costs and is for one specific condition, namely HF. ■ The cost of starting a new CR program is significant. One panelist indicated that if a BPCI participant did not have access to an existing CR program, it would not be feasible to start a new CR program for BPCI. ■ "Rehab-like" programs may be occurring (and would not be captured by CR claims). BPCI participants would not be constrained from initiating rehabilitation to increase activity if it was felt to be beneficial.	

Topic / BPCI Finding	Questions to Panelists
New treatments or breakthroughs in heart failure care	▪ What new treatments or breakthroughs in heart failure care might we see now and in the near future? ▪ How would these changes affect costs in the inpatient setting? ▪ How would these changes affect costs In the outpatient/post-acute care setting?
Results	
▪ Panelists generally did not identify new treatments or breakthroughs in HF care that will affect costs. ▪ A new drug, sacubitril /valsartan, has been approved for systolic HF; however, panelists doubted it would have much impact on costs as it is not a drug that would apply to most Medicare beneficiaries with HF. ▪ Panelists noted that newer monitoring devices are all expensive technologies; they may be cost effective but are not cost saving. ▪ One area of interest is cell phone technology. There have been a number of studies showing that text messaging systems tend to improve patient adherence, including adherence with medication and diet. There is some potential for cell phone applications for improving health outcomes in HF populations. Since such a large proportion of the population, including older people, now have smart phones, panelists believed cell phone applications for improving health outcomes in HF populations could conceivably be scalable and not too expensive. ▪ Panelists commented that a breakthrough in HF care would be an increase in access to palliative care, noting there is evidence that earlier initiation of palliative care is associated with reduced hospitalization.	

B. Potential Implications of TEP Findings for Current Activities and Analyses:

- Research question C—what factors contributed to the various results under the initiative? TEP members suggested several patterns of care that may affect functional outcomes. We could investigate whether the following affect the quality and payment outcomes:
    - Types of home health visits or changes in types of visits (e.g. therapy, skilled, home health aide)
    - Rehabilitation versus nursing costs in SNFs
    - Use of palliative care (explore ways in which palliative care may be identified in claims)
- Potential questions or probes for site visits or quarterly calls:
    - Has there been any change in the use of palliative care? Why? Does this raise or lower costs? Is it a best practice?
    - What are the differences in patterns of care between your preferred SNF/HHA providers and others?
- Panelists indicated that they believe that providers have reduced HF readmissions as much as is possible in response to the Hospital Readmission Reduction Program. We can study whether there is a difference between changes in readmission rates for the BPCI episodes subject to the hospital penalties compared with the episodes not subject to the penalties. This may provide some information about potential continued declines in this measure.

C. Panelists Names and Titles

Anne Deutsch, RN, PhD, CRRN, FACRM is a Senior Research Public Health Analyst at RTI International. She is a certified rehabilitation registered nurse with a doctoral degree in Epidemiology and Community Health. Anne also has an appointment as a Clinical Research Scientist at the Rehabilitation Institute of Chicago's Center for Rehabilitation Outcomes Research and is a Research Associate Professor in the Department of Physical Medicine and Rehabilitation in Northwestern University's Feinberg School of Medicine.

Kumar Dharmarajan, MD, MBA is a board-certified cardiologist and geriatrician who is Assistant Professor of Medicine (Cardiology) at the Yale School of Medicine. He is also a Research Scientist at the Yale-New Haven Hospital Center for Outcomes Research and Evaluation (CORE). Dr. Dharmarajan's primary interests are in improving health outcomes for older persons with cardiopulmonary disease.

Edward Havranek, MD practices general cardiology at Denver's municipal hospital, Denver Health Medical Center, and is Director of Health Services Research for Denver Health. He is a Professor of Medicine at the University of Colorado School of Medicine, currently serves as chair of the American Heart Association's Quality of Care and Outcomes Research Annual Scientific Forum Program Committee.

Cindy Krafft PT, MS, HCS-O has been involved at the senior leadership level for the Home Health Section of the American Physical Therapy Association and is the current President of that organization.

Trudy Mallison, PhD, OTR./L, FAOTA, NZROT is Associate Professor in the School of Medicine and Health Sciences at the George Washington University; she also holds a position in the newly launched Office for Clinical Practice Innovation Therapy Association (AOTA).

Joan Marren, RN, MA, MEd is currently a national consultant in health care strategy and practice, primarily focused on home and community-based services. She is a founding member of Quadrant Consulting, LLC, a partnership of four experienced leaders in Home Care and Hospice services.

Kathleen McCauley PhD, RN, FAAN, FAHA is **a** member of a research team led by Dr. Mary Naylor that has tested the Advanced Practice Nurse (APN) Transitional Care Model in vulnerable elders; her primary responsibility within this team includes development of clinical intervention protocols, tools, and systems to educate nurses and others in implementing transitional care and leading of APN case discussions to improve patient outcomes and the expertise of the transitional care nurses.

Michael Rich, MD is Professor of Medicine and Cardiology at the Washington University School of Medicine, and Director of the Cardiac Rapid Evaluation Unit at Barnes-Jewish Hospital in St. Louis. He is an internationally recognized expert in geriatric cardiovascular disease, and he is past president of the Society of Geriatric Cardiology. He currently serves on the Editorial Boards of numerous publications, and he is Senior Associate Editor for the *Journal of Cardiac Failure*, Associate Editor for the *American Journal of Medicine*, and past Associate Editor for the *Journal of the American Geriatrics Society.*

III. Coronary Artery Bypass Graft (CABG)

A. Summary Report

Date:	July 8, 2016
Facilitator:	Christine LaRocca, MD
Participants:	Cheryl L. Esbrook, OTR/L, BCPR; Cindy Krafft, PT, MS, HCS-O; Cindy Sun, MSN, RN, COS-C; Kumar Dharmarajan, MD, MBA; Mary J. Zellinger APRN, MN, ANP-BC, CCRN-CSC, CCNS; Richard Parker, MD; Steven A. Farmer, MD, PhD, FACC, FASE

Topic / BPCI Finding	Questions to Panelists
Readmission results, Model 2, Urgent/Emergent CABG patients: ■ Between the baseline and intervention periods, the 30 and 90 day readmission rates for BPCI "Urgent/Emergent" CABG patients did not change significantly (at the 5% alpha level) relative to the comparison group (Source: Claims data). Despite incentives to decrease readmissions within a 30 day and 90 day window for "Urgent/Emergent" CABG patients, Model 2 BPCI participants have not been able to do so.	■ Does this surprise you? What questions should we explore related to this finding? ■ What, if anything, works for readmission reduction in "urgent/emergent" CABG Medicare Fee For Service (FFS) patients? ■ What do you want to make sure we know/CMS knows about this population of patients?

Results

- To explore potential explanations for the above findings, panelists noted that examining the diagnoses associated with the readmissions is necessary to further refine strategies needed to reduce the readmission rate.
- Those caring directly for patients may be unaware that their facility is participating in bundled payments or do not know which patients are in a BPCI episode. Decisions at the executive level to participate in BPCI may not translate into care practice changes at the front line.
- The importance of coordinated patient follow-up post hospital discharge was emphasized.
- Causes for readmissions in this population include the inability to fill medication prescriptions and not having family members to help with postoperative needs.
- It was recommended that cardiovascular programs assemble a committee whose mission is to identify the causes for readmissions and pinpoint potential interventions to prevent future readmissions. This committee should assess each CABG readmission through the 90 day period after hospital discharge.

Topic / BPCI Finding	Questions to Panelists
Emergency Department (ED) Use and Model 2 "Urgent/Emergent" CABG Patients: ■ While results should be interpreted with caution, ED use is increasing among BPCI "Urgent/Emergent" CABG patients. In addition, the use of institutional post-acute care (i.e. skilled nursing facility (SNF) or inpatient rehabilitation facility (IRF)), out of those who receive post-acute care, may be declining, although the results were not significant.	■ What diagnoses might reflect stinting of SNF care or perhaps an inadequate number of SNF days? ■ What are the primary reasons that "Urgent/Emergent" CABG patients return to the ED within 30 days and within 90 days after hospital discharge? ■ How would you, as a clinician, respond to increases in the rate of ED use in this patient population? ■ What are the potential quality implications of increases in the rate of ED use? ■ What quality indicators should we monitor in our data analyses to better understand increases in the rate of ED use?

Results

- To explore potential explanations for these findings, panelists raised the following questions:
- Who is returning to the ED? [Panelists requested patient characteristics]
- What are the reasons and associated diagnoses for returning to the ED? The reasons and associated diagnoses will lend insight to address: "Did the ED visit result from lack of follow-up care on the part of providers? If the patient had been seen in the physician's office rather than in the ED, could the condition have been handled earlier, quicker, and better?" What is the timing of the return to ED in terms of number of days post discharge from the hospital and/or SNF? When presenting to the ED, where is the patient coming from (i.e. SNF, home with home health, or home)?
- Concern was raised about the scenario of decreasing SNF and IRF utilization without a corresponding increase in home health use. The concern centered on lack of formal follow- up that may benefit patients in the home.
- Emergency department visits from the SNF or from an outpatient setting for diagnoses related to fluid retention (i.e. pleural effusions, weight gain, edema) may raise concerns about the care provided in the post-acute setting. These diagnoses may provide quality indicators for future monitoring.
- The practice of sending physicians to the SNF to proactively identify and treat problems in an effort to prevent a return to the ED was highlighted. Transporting patients from the SNF to an office visit was noted to be challenging.
- The lack of low sodium dietary options in many SNFs was noted to be a problem.
- A patient's geographic proximity to the discharging hospital was suggested to be a potential factor in ED use. Limited access to varying levels of care in the patient's community may be a contributor. In addition, cardiovascular surgeons may prefer to send patients to the ED when communicating with clinicians who are hundreds of miles away and with whom they have not established trusting relationships.
- A number of variables should be considered when studying home health care, including whether the home health agency (HHA) is associated with the discharging hospital or is an independent HHA. It was noted that, for patients living hundreds of miles from the discharging hospital, the local independent HHAs and clinicians will send patients back to the ED more readily than they might if they were in an area closer to the cardiovascular surgeon.

Topic / BPCI Finding	Questions to Panelists
Potential BPCI Participant Behaviors in Response to Incentives – Service use: ■ Potential participant behavioral responses include reducing service intensity of bundles or providing fewer services.	■ For CABG patients, what service use would you expect to decline with bundled payment incentives: • In the inpatient setting? • In the outpatient/post-acute care setting?

Results

- Discouraging admissions of higher risk patients and encouraging admissions of lower risk patients, also referred to as cherry-picking, currently occurs. The opinion was shared that every large city hospital is the receiver of patients that are labeled "too high risk [for CABG]," despite the sending location having area hospitals with cardiovascular programs. This behavior was attributed to several factors, including public reporting and programs striving to achieve higher star ratings in the STS National Database. There was interest among the panelists in an analysis of the zip code of origin for high risk CABG patients. [Telligen provides the following reference for additional information: Omoigui NA, Miller DP, Brown KJ, Annan K, Cosgrove D 3rd, Lytle B, Loop F, Topol EJ. Outmigration for Coronary Bypass Surgery in an Era of Public Dissemination of Clinical Outcomes. Circulation. 1996;93(1):27-33. doi: 10.1161/01.CIR.93.1.27.]
- Admissions may not only be discouraged on the basis of medical risk but also due to socioeconomic status and for minorities; an article by Rachel Werner was referenced to support this assertion. [Werner RM, Asch DA, Polsky D. Racial Profiling: The Unintended Consequences of Coronary Artery Bypass Graft Report Cards. Circulation. 2005;111:1257-1263. doi: 10.1161/01.CIR.0000157729.59754.09.]
- Market forces impact patient selection: if the supply of surgeons exceeds demand for surgery, then the ability to cherry-pick is substantially reduced. However, if demand for surgery exceeds the surgeon capacity, the surgeons can be more selective about which patients they operate upon. Hospitals can also create pressures depending on market forces.
- Within the hospital, the finance department focuses on volume and the quality department focuses on outcomes; as a result, surgeons sense "divergent opinions" about which patients they should be operating upon.
- It was noted that BPCI data will not include higher risk patients seen in the outpatient setting who were discouraged from having an elective CABG.
- One panelist noted that he is seeing the occurrence of more thoughtful discussions with patients, often involving several different consultants, to look at whether the patient would be better cared for by medical care or hospice care rather than surgery.
- There is the potential for cherry-picking by HHAs; however, the higher priority currently is obtaining patients. It was suggested that it may be worthwhile to evaluate care differences between those HHAs that are affiliated with an accountable care organization (ACO) versus those that are not.

Topic / BPCI Finding	Questions to Panelists
Potential BPCI Participant Actions in Response to Incentives – Best practices for higher quality	▪ For CABG surgery and related care, what are potential best practices for higher quality and more coordinated care in each of the following settings: • In the inpatient setting? • In the outpatient/post-acute care setting?

Results

- Systematic case review of the potential reasons patients return to the ED was noted to be a best practice. The review should include questions such as:
  - Why did the patient go back to the ED?
  - Was the patient able to fill his/her medications?
  - Can the patient administer his/her medications?
  - Does the patient have cognitive impairment, either post anesthesia impairment or preexisting?
  - How is the patient doing at home? Anecdotally, it was noted that many patients are unable to cook for themselves and this was only discovered after the patient immediately declined upon hospital or SNF discharge.
  - Are the providers in the care continuum all using the same tools and educational materials, or are they all creating their own?
- Telemedicine and telehealth were perceived as best practices. Anecdotally, a best practice for HHAs is to provide some sort of telecommunication with the patient on a daily basis, at least for the first 7 days after returning home.
- One panelist described better HHAs as those who stagger their visits when developing a visit schedule for patients, such that a therapist visits one day, a registered nurse the next day, a home health aide the next, etc. Days that do not include an in-person visit would be covered by a phone call.
- A noted barrier in hospitals is the lack of weekend physical therapy, occupational therapy, cardiac rehabilitation, and social work services. In home health care, there is a high rate of variability in the recognition of the importance of early rehabilitation and 7-day per week rehabilitation services for the cardiovascular population. The perception of HHA's approach appears to be: "The priority on the weekends is the orthopedic patients, and the cardiovascular patients can wait until the beginning of next week."

Topic / BPCI Finding	Questions to Panelists
New treatments or breakthroughs	▪ What new treatments or breakthroughs in CABG might we see now and in the near future? ▪ How would these changes affect costs in the inpatient setting? ▪ How would these changes affect costs In the outpatient/post-acute care setting? ▪ What effect might BPCI participation have on the adoption of new technologies and innovation in CABG surgery and related care?
Results	
▪ No new treatments or breakthroughs in CABG surgery which would significantly affect costs were described. Over time, anesthesia techniques have improved, and pump time, intubation duration, and sedation duration are all shorter. There is less narcotic use and earlier mobilization. ▪ Catheter-based interventions by cardiologists have improved, resulting in less CABG surgery. Those patients who receive CABG were noted to have increased severity of disease, while at the same time there is demand for better outcomes and lower costs. ▪ Expansion of telehealth is anticipated with the aging of the baby boomer population. ▪ To implement new technologies under BPCI, the proposed technology would need to have demonstrated cost savings or greater value than the existing practice. While this inquiry would be a desirable outcome of BPCI, there is the potential to stifle the implementation of new innovations which are more expensive in the short term. The potential to stifle innovation would be a larger issue for 30 day bundles when compared to 60 or 90 day bundles.	

B. Potential Implications of TEP Findings for Current Activities and Analyses:

- Panelists indicated that to fully explore the potential reasons for the BPCI CABG readmissions, the diagnoses associated with these readmissions are needed. Panelists were particularly interested in the identification of potential trends among the diagnoses. Should BPCI CABG readmission rates warrant further exploration, trending by readmission diagnosis may be considered.
- In the current evaluation, most measures of post-acute care use are for the first site of post-acute care only. For example, the measure of PAC setting is based on the first discharge setting. There is no measure that looks at the proportion discharged to SNF who are subsequently discharged to HHA, although total HHA visits, regardless of when during the episode, is an outcome. If significant utilization differences emerge between BPCI and comparison providers, it might be instructive to look at subsequent post-acute care use, occurring after the first site of post-acute care.
- Evidence of cherry picking will continue to be monitored. If warranted, an analysis of the zip code of origin for high risk patients may be considered to potentially substantiate the concern for outmigration.
- Should BPCI CABG ED use warrant further exploration, and assess whether post-acute care differences might be influencing this result, panelists expressed interest in information to answer the following questions:
- Who is returning to the ED? [Panelists requested patient characteristics, including home zip code.]
- What are the reasons and associated diagnoses for returning to the ED?
- What is the timing of the return to ED in terms of number of days post discharge from the hospital and/or SNF?
- When presenting to the ED, where is the patient coming from (i.e. SNF, home with home health, home, other)
- Potential Questions, Inquiries for Site Visits, or Quarterly Calls:
    - What are the differences in patterns of care between your preferred SNF/HHA providers and others?
    - Do you collect the diagnoses associated with emergency department visits from the SNF or from an outpatient setting? (Panelists noted that diagnoses related to fluid retention (i.e. pleural effusions, weight gain, edema) may raise concerns about the care provided in the post-acute setting. These diagnoses may provide quality indicators for future monitoring.)

C. Panelists Names and Titles

Kumar Dharmarajan, MD, MBA is a board-certified cardiologist and geriatrician who is Assistant Professor of Medicine (Cardiology) at the Yale School of Medicine. He is also a Research Scientist at the Yale-New Haven Hospital Center for Outcomes Research and Evaluation (CORE). Dr. Dharmarajan's primary interests are in improving health outcomes for older persons with cardiopulmonary disease.

Cheryl Esbrook, OTR/L, BCPR has been a practicing occupational therapist at the University of Chicago Medical Center focusing her treatment and research on critical care patient populations in both the medical and surgical ICUs for 13 years. She is also the coordinator of the occupational therapy fieldwork program for students at the University of Chicago as well as the first occupational therapy residency program in acute care.

Steven A. Farmer, MD, PhD, FACC, FASE is Associate Professor of Medicine and Health Policy at George Washington University and Adjunct Associate Professor of Medicine and Business Strategy at Northwestern University. He is a non-invasive cardiologist with a busy clinical practice in Washington, D.C. He is a nationally recognized expert on health policy, regulation, and payment reform. He leads an NIH-funded study of the joint effect of malpractice risk and financial incentives on cardiac testing.

Cindy Krafft PT, MS, HCS-O has been involved at the senior leadership level for the Home Health Section of the American Physical Therapy Association and is the current President of that organization.

Richard Parker, MD is board-certified in general, thoracic, and cardiovascular surgery. He serves patients at Presbyterian/St. Luke Medical Center and Rose Medical Center in Denver, Colorado. Currently, he serves as Chief of Cardiovascular Surgery at Rose Medical Center and Chairman of the Department of Cardiovascular Surgery at Presbyterian/St. Luke Medical Center.

Cindy Sun, MSN, FNP, COS-C is a family nurse practitioner and university educator with experience in a variety of health care settings including home health, hospital, and physician's office. Cindy's responsibilities with Home Health Quality Improvement (HHQI) include coordinating more than 100 national Network Coordinators, developing educational resources and data reports, as well as being a primary resource for the nation's home health agencies. Her newest responsibility is leading the integration and evaluation of preventive cardiovascular care into the home health setting through the Home Health Cardiovascular Data Registry (HHCDR).

Mary Zellinger, APRN-CCNS, MN, ANP-BC, CCRN-CSC is the Clinical Nurse Specialist for cardiovascular critical care at Emory University Hospital, and a collaborative faculty member of the Emory University School of Nursing in Atlanta. Mary is the coordinator for the Emory University Hospital Magnet Champions program, works closely with members of the interdisciplinary team to address quality and improvement opportunities for the CTS patient, and was a co-lead for a team that implemented the Pain, Agitation, and Delirium guidelines in 2013 for all the ICUs at Emory Healthcare.

Appendix J: Comparison Group Standardized Difference Tables

Exhibit J.1.a: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 4, Urinary Tract Infection

Variable	Episode 4 (Urinary Tract Infection)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.03	-0.04
Ownership - Government	-0.63	-0.02
Ownership - For Profit*	0.48	0.05
Urban	0.99	0.03
Bed Count	0.57	0.14
Chain Indicator	-0.15	-0.04
Medicare Days as a Percent of Total Inpatient Days	-0.37	-0.04
Resident-Bed Ratio	0.05	0.02
Disproportionate Share Percent	0.10	-0.02
Teaching Status	0.23	0.03
Population Size of Market Area	0.50	0.05
Median Household Income	0.75	0.00
Medicare Advantage Penetration	0.37	0.02
Primary Care Providers per 10,000 in Market	0.38	-0.08
SNF Beds per 10,000 in Market	-0.65	-0.02
Inpatient Rehabilitation Facility in Market	0.48	0.02
Provider Market Share of the 48 potential BPCI episodes	-0.52	0.01
Herfindahl Index of Hospital Market Shares	-0.76	-0.03
Percentage of total discharges in the 48 clinical episodes in 2011	-0.26	-0.15
Number of discharges for clinical episode in 2011	0.75	0.12
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.36	0.03
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.46	-0.08
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.04	-0.02
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.16	0.04
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.22	0.03
Unplanned readmission rate by clinical episode in 2011	0.11	0.00
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	0.05	0.04
All-cause mortality rate by clinical episode in 2011	-0.03	0.02
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	0.00	0.00
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.49	-0.02
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	-0.10	0.05

* These variables were not included for this model.

** Caliper was 1/10th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -5.17 and the standard deviation was 2.40.

Exhibit J.1.b: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 5, Stroke

Variable	Episode 5 (Stroke)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.02	0.01
Ownership - Government	-0.32	-0.01
Ownership - For Profit*	0.29	0.00
Urban*	NA	NA
Bed Count	0.45	-0.08
Chain Indicator	0.03	-0.04
Medicare Days as a Percent of Total Inpatient Days	-0.15	0.02
Resident-Bed Ratio	0.17	-0.01
Disproportionate Share Percent	0.06	-0.08
Teaching Status	0.27	-0.04
Population Size of Market Area	0.33	-0.01
Median Household Income	0.33	0.08
Medicare Advantage Penetration	-0.09	-0.02
Primary Care Providers per 10,000 in Market	0.05	0.04
SNF Beds per 10,000 in Market	-0.09	0.09
Inpatient Rehabilitation Facility in Market	0.37	-0.02
Provider Market Share of the 48 potential BPCI episodes	-0.21	0.02
Herfindahl Index of Hospital Market Shares	-0.46	0.03
Percentage of total discharges in the 48 clinical episodes in 2011	-0.06	0.04
Number of discharges for clinical episode in 2011	0.48	-0.07
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.29	-0.02
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.37	0.06
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	-0.15	-0.05
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.10	0.04
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	-0.01	-0.01
Unplanned readmission rate by clinical episode in 2011	0.10	-0.05
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.20	0.01
All-cause mortality rate by clinical episode in 2011	0.05	0.04
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.02	0.08
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.38	-0.04
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	0.15	-0.04

* These variables were not included for this model.
** Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.52 and the standard deviation was 1.33.
NA – not available as there are no participants with these characteristics.

Exhibit J.1.c: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 6, Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma

Variable	Episode 6 (Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.36	0.00
Ownership - Government	-0.62	0.00
Ownership - For Profit*	0.13	0.01
Urban	0.79	-0.02
Bed Count	0.61	-0.04
Chain Indicator	-0.09	-0.06
Medicare Days as a Percent of Total Inpatient Days	-0.38	-0.01
Resident-Bed Ratio	0.25	-0.05
Disproportionate Share Percent	0.01	-0.01
Teaching Status	0.40	-0.05
Population Size of Market Area	0.49	0.00
Median Household Income	0.71	0.01
Medicare Advantage Penetration	0.26	0.04
Primary Care Providers per 10,000 in Market	0.40	-0.05
SNF Beds per 10,000 in Market	-0.46	-0.02
Inpatient Rehabilitation Facility in Market	0.45	0.02
Provider Market Share of the 48 potential BPCI episodes	-0.35	-0.07
Herfindahl Index of Hospital Market Shares	-0.57	-0.06
Percentage of total discharges in the 48 clinical episodes in 2011	-0.35	0.01
Number of discharges for clinical episode in 2011	0.57	-0.03
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.62	-0.04
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.44	0.06
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.24	-0.02
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.05	0.08
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.45	0.03
Unplanned readmission rate by clinical episode in 2011	0.33	0.02
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	0.00	0.08
All-cause mortality rate by clinical episode in 2011	0.04	0.01
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	0.00	0.06
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.62	0.04
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	-0.09	-0.03

* These variables were not included for this model.
** Caliper was 1/10th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.91 and the standard deviation was 1.83.

Exhibit J.1.d: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 7, Coronary Artery Bypass Graft

Variable	Episode 7 (Coronary Artery Bypass Graft)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.10	-0.02
Ownership - Government	-0.36	-0.08
Ownership - For Profit*	0.22	0.08
Urban	0.27	0.04
Bed Count	0.56	0.01
Chain Indicator	-0.04	0.01
Medicare Days as a Percent of Total Inpatient Days	-0.52	0.06
Resident-Bed Ratio	0.51	0.00
Disproportionate Share Percent	0.16	-0.03
Teaching Status	0.50	-0.02
Population Size of Market Area	0.71	-0.04
Median Household Income	0.59	0.01
Medicare Advantage Penetration	0.28	0.02
Primary Care Providers per 10,000 in Market	0.37	0.06
SNF Beds per 10,000 in Market	-0.02	-0.02
Inpatient Rehabilitation Facility in Market	0.59	0.01
Provider Market Share of the 48 potential BPCI episodes	-0.58	0.00
Herfindahl Index of Hospital Market Shares	-0.69	-0.01
Percentage of total discharges in the 48 clinical episodes in 2011	-0.20	0.03
Number of discharges for clinical episode in 2011	0.20	0.02
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.48	-0.04
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.18	-0.03
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.17	0.04
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	-0.12	-0.05
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.29	0.05
Unplanned readmission rate by clinical episode in 2011	0.20	-0.02
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.01	0.01
All-cause mortality rate by clinical episode in 2011	-0.26	-0.05
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.11	0.05
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.27	-0.04
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.10	-0.01

* These variables were not included for this model.
** Caliper was 1/10th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.71 and the standard deviation was 1.67.

Exhibit J.1.e: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 8, Major Joint Replacement of the Lower Extremity

Variable	Episode 8 (Major Joint Replacement of the Lower Extremity)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.16	0.02
Ownership - Government	-0.41	-0.03
Ownership - For Profit*	0.17	0.00
Urban	0.68	0.01
Bed Count	0.51	-0.05
Chain Indicator	-0.14	0.01
Medicare Days as a Percent of Total Inpatient Days	-0.12	0.00
Resident-Bed Ratio	0.29	0.00
Disproportionate Share Percent	-0.08	-0.02
Teaching Status	0.28	-0.04
Population Size of Market Area	0.33	0.00
Median Household Income	0.45	0.00
Medicare Advantage Penetration	0.08	0.03
Primary Care Providers per 10,000 in Market	0.39	0.04
SNF Beds per 10,000 in Market	-0.28	0.05
Inpatient Rehabilitation Facility in Market	0.51	0.00
Provider Market Share of the 48 potential BPCI episodes	-0.49	-0.03
Herfindahl Index of Hospital Market Shares	-0.65	-0.02
Percentage of total discharges in the 48 clinical episodes in 2011	-0.27	-0.02
Number of discharges for clinical episode in 2011	0.43	-0.06
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.43	-0.02
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.07	0.03
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.19	-0.01
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	-0.09	-0.02
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.07	0.00
Unplanned readmission rate by clinical episode in 2011	0.10	-0.01
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.05	0.05
All-cause mortality rate by clinical episode in 2011	-0.11	0.05
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.05	-0.01
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.12	-0.02
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.02	0.02

* These variables were not included for this model.
** Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -2.26 and the standard deviation was 1.39.

Exhibit J.1.f: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 9, Percutaneous Coronary Intervention

Variable	Episode 9 (Percutaneous Coronary Intervention)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.61	-0.08
Ownership - Government	-0.52	0.02
Ownership - For Profit*	1.10	0.07
Urban*	NA	NA
Bed Count	0.04	0.12
Chain Indicator	-0.31	0.10
Medicare Days as a Percent of Total Inpatient Days	0.01	0.04
Resident-Bed Ratio	-0.13	0.10
Disproportionate Share Percent	-0.04	-0.04
Teaching Status	0.04	0.14
Population Size of Market Area	0.52	-0.01
Median Household Income	0.33	-0.03
Medicare Advantage Penetration	0.06	-0.16
Primary Care Providers per 10,000 in Market	0.02	-0.01
SNF Beds per 10,000 in Market	-0.44	0.11
Inpatient Rehabilitation Facility in Market	0.51	-0.02
Provider Market Share of the 48 potential BPCI episodes	-0.53	-0.04
Herfindahl Index of Hospital Market Shares	-0.57	-0.02
Percentage of total discharges in the 48 clinical episodes in 2011	0.06	-0.24
Number of discharges for clinical episode in 2011	0.01	0.03
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.64	0.08
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.26	0.17
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.41	-0.11
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.05	0.14
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.40	-0.07
Unplanned readmission rate by clinical episode in 2011	0.20	-0.02
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.05	0.04
All-cause mortality rate by clinical episode in 2011	0.10	0.02
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.20	0.00
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011[1]	0.68	0.07
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.08	-0.07

* These variables were not included for this model.

** Caliper was 1/3rd of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.04 and the standard deviation was 1.51.

NA – not available as there are no participants with these characteristics.

[1]For this episode, this variable was replaced with a categorical variable indicating whether standardized payments were greater than $19,000. An interaction term between the categorical standardized payment variable and payment change variable was also added.

Exhibit J.1.g: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 14, Congestive Heart Failure

Variable	Episode 14 (Congestive Heart Failure)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.36	-0.04
Ownership - Government	-0.61	-0.03
Ownership - For Profit*	0.13	0.06
Urban	0.75	0.04
Bed Count	0.60	-0.02
Chain Indicator	-0.15	-0.03
Medicare Days as a Percent of Total Inpatient Days	-0.35	-0.01
Resident-Bed Ratio	0.28	-0.02
Disproportionate Share Percent	-0.06	0.02
Teaching Status	0.29	-0.02
Population Size of Market Area	0.41	0.02
Median Household Income	0.60	-0.03
Medicare Advantage Penetration	0.23	0.06
Primary Care Providers per 10,000 in Market	0.35	-0.05
SNF Beds per 10,000 in Market	-0.48	0.00
Inpatient Rehabilitation Facility in Market	0.41	0.04
Provider Market Share of the 48 potential BPCI episodes	-0.38	-0.07
Herfindahl Index of Hospital Market Shares	-0.55	-0.06
Percentage of total discharges in the 48 clinical episodes in 2011	-0.36	-0.05
Number of discharges for clinical episode in 2011	0.66	-0.04
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.37	-0.04
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.37	0.02
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.02	0.02
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.00	0.00
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.32	0.03
Unplanned readmission rate by clinical episode in 2011	0.28	-0.01
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	-0.09	0.07
All-cause mortality rate by clinical episode in 2011	0.06	0.02
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	-0.09	0.01
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.41	0.02
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	0.01	0.01

* These variables were not included for this model.
** Caliper was 1/10th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.52 and the standard deviation was 1.69.

Exhibit J.1.h: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 15, Acute Myocardial Infarction

Variable	Episode 15 (Acute Myocardial Infarction)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.38	0.07
Ownership - Government	-0.55	-0.01
Ownership - For Profit*	0.05	-0.07
Urban	0.71	0.01
Bed Count	0.51	-0.02
Chain Indicator	-0.20	-0.02
Medicare Days as a Percent of Total Inpatient Days	-0.27	0.07
Resident-Bed Ratio	0.28	-0.03
Disproportionate Share Percent	-0.06	-0.03
Teaching Status	0.23	-0.02
Population Size of Market Area	0.38	0.03
Median Household Income	0.70	0.03
Medicare Advantage Penetration	0.25	-0.07
Primary Care Providers per 10,000 in Market	0.45	0.01
SNF Beds per 10,000 in Market	-0.31	0.14
Inpatient Rehabilitation Facility in Market	0.35	0.09
Provider Market Share of the 48 potential BPCI episodes	-0.40	0.00
Herfindahl Index of Hospital Market Shares	-0.50	0.00
Percentage of total discharges in the 48 clinical episodes in 2011	-0.20	0.04
Number of discharges for clinical episode in 2011	0.56	0.01
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.24	-0.08
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	-0.01	-0.07
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.11	0.06
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	-0.22	0.02
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.27	0.07
Unplanned readmission rate by clinical episode in 2011	0.17	-0.03
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	-0.05	0.06
All-cause mortality rate by clinical episode in 2011	-0.15	0.07
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	0.07	0.04
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.08	0.01
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	-0.10	-0.08

* These variables were not included for this model.
** Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.80 and the standard deviation was 1.47.

Exhibit J.1.i: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 16, Cardiac Arrhythmia

Variable	Episode 16 (Cardiac Arrhythmia)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.43	0.00
Ownership - Government	-0.58	-0.08
Ownership - For Profit*	0.01	0.05
Urban	0.66	0.00
Bed Count	0.29	-0.04
Chain Indicator	-0.06	-0.03
Medicare Days as a Percent of Total Inpatient Days	-0.35	0.01
Resident-Bed Ratio	0.29	-0.09
Disproportionate Share Percent	0.01	-0.03
Teaching Status	0.15	-0.08
Population Size of Market Area	0.59	0.02
Median Household Income	0.72	-0.04
Medicare Advantage Penetration	0.30	0.02
Primary Care Providers per 10,000 in Market	0.41	-0.05
SNF Beds per 10,000 in Market	-0.41	-0.01
Inpatient Rehabilitation Facility in Market	0.52	-0.02
Provider Market Share of the 48 potential BPCI episodes	-0.43	0.01
Herfindahl Index of Hospital Market Shares	-0.51	0.02
Percentage of total discharges in the 48 clinical episodes in 2011	-0.13	0.04
Number of discharges for clinical episode in 2011	0.26	-0.01
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.21	0.02
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.26	0.05
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.05	-0.05
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.12	0.05
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.11	0.00
Unplanned readmission rate by clinical episode in 2011	0.01	-0.04
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.11	0.00
All-cause mortality rate by clinical episode in 2011	-0.04	0.04
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.10	0.00
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.30	-0.09
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.08	0.05

* These variables were not included for this model.
** Caliper was 1/10th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.29 and the standard deviation was 1.48.

Exhibit J.1.j: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 17, Cardiac Valve

Variable	Episode 17 (Cardiac Valve)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.05	-0.03
Ownership - Government	0.01	0.02
Ownership - For Profit*	-0.11	0.01
Urban	0.07	0.02
Bed count	0.82	-0.04
Chain Indicator	0.17	-0.10
Medicare Days as a Percent of Total Inpatient Days	-0.49	0.06
Resident-Bed Ratio	0.61	-0.02
Disproportionate Share Percent	-0.05	-0.09
Teaching Status	0.49	0.06
Population Size of Market Area*	0.97	0.58
Median Household Income	0.53	0.00
Medicare Advantage Penetration	0.29	-0.05
Primary Care Providers per 10,000 in Market	0.35	-0.03
SNF Beds per 10,000 in Market	-0.13	-0.04
Inpatient Rehabilitation Facility in Market	0.49	-0.02
Provider Market Share of the 48 potential BPCI episodes	-0.56	-0.11
Herfindahl Index of Hospital Market Shares	-0.64	-0.09
Percentage of total discharges in the 48 clinical episodes in 2011	-0.28	0.05
Number of discharges for clinical episode in 2011	0.84	-0.07
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.17	-0.01
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.07	-0.08
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.30	0.04
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	-0.38	-0.11
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	-0.10	0.09
Unplanned readmission rate by clinical episode in 2011	0.35	0.11
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.08	0.07
All-cause mortality rate by clinical episode in 2011	-0.04	-0.04
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.19	0.03
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011[1]	0.20	0.00
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	0.00	0.14

* These variables were not included for this model.

** Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was-4.89 and the standard deviation was 2.30.

[1] The continuous payment variable was replaced with an indicator variable for payments equal or above the median value.

Exhibit J.1.k: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 20, Gastrointestinal Hemorrhage

Variable	Episode 20 (Gastrointestinal Hemorrhage)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.44	0.05
Ownership – Government*	NA	NA
Ownership - For Profit*	-0.44	-0.05
Urban	0.56	0.02
Bed Count	0.52	-0.11
Chain Indicator	-0.05	0.00
Medicare Days as a Percent of Total Inpatient Days	-0.29	-0.03
Resident-Bed Ratio	0.68	-0.04
Disproportionate Share Percent	-0.01	-0.02
Teaching Status	0.43	-0.05
Population Size of Market Area	0.54	-0.06
Median Household Income	0.74	0.02
Medicare Advantage Penetration	0.08	-0.03
Primary Care Providers per 10,000 in Market	0.51	0.03
SNF Beds per 10,000 in Market	-0.12	0.02
Inpatient Rehabilitation Facility in Market	0.74	-0.01
Provider Market Share of the 48 potential BPCI episodes	-0.39	0.01
Herfindahl Index of Hospital Market Shares	-0.47	0.01
Percentage of total discharges in the 48 clinical episodes in 2011	-0.30	0.09
Number of discharges for clinical episode in 2011	0.50	-0.10
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.31	0.00
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.15	-0.09
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.24	0.09
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	-0.11	0.03
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.15	-0.07
Unplanned readmission rate by clinical episode in 2011	0.21	0.00
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	0.05	0.11
All-cause mortality rate by clinical episode in 2011	-0.13	0.04
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	0.01	-0.09
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.22	0.02
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	0.08	0.13

* These variables were not included for this model.
**Caliper was 1/10th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was-4.29 and the standard deviation was 1.29.
NA – not available as there are no participants with these characteristics.

Exhibit J.1.I: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 21, Major Bowel Procedure

Variable	Episode 21 (Major Bowel Procedure)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.27	0.05
Ownership – Government	-0.33	-0.09
Ownership - For Profit*	0.61	0.00
Urban*	NA	NA
Bed count	0.46	0.09
Chain Indicator	-0.20	0.00
Medicare Days as a Percent of Total Inpatient Days	0.03	-0.04
Resident-Bed Ratio	0.13	0.00
Disproportionate Share Percent	0.06	0.04
Teaching Status	0.29	-0.07
Population Size of Market Area	0.46	0.09
Median Household Income	0.46	-0.08
Medicare Advantage Penetration	-0.21	0.03
Primary Care Providers per 10,000 in Market	0.10	-0.06
SNF Beds per 10,000 in Market	0.13	0.03
Inpatient Rehabilitation Facility in Market	0.61	0.06
Provider Market Share of the 48 potential BPCI episodes	-0.31	0.04
Herfindahl Index of Hospital Market Shares	-0.54	0.00
Percentage of total discharges in the 48 clinical episodes in 2011	-0.16	-0.12
Number of discharges for clinical episode in 2011	0.40	0.06
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.77	0.00
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.23	-0.10
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.17	0.01
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.43	0.04
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.31	0.01
Unplanned readmission rate by clinical episode in 2011	0.38	0.01
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.18	-0.03
All-cause mortality rate by clinical episode in 2011	-0.17	0.09
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.09	-0.01
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.57	0.04
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.07	-0.07

* This variable was not included for this model.
**Caliper was 1/10th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.67 and the standard deviation was 1.57.
NA – not available as there are no participants with these characteristics.

Exhibit J.1.m: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 23, Medical Non-Infectious Orthopedic

Variable	Episode 23 (Medical Non-Infectious Orthopedic)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.30	0.04
Ownership - Government	-0.34	-0.05
Ownership - For Profit*	0.64	-0.01
Urban*	NA	NA
Bed Count	0.10	0.10
Chain Indicator	-0.17	-0.03
Medicare Days as a Percent of Total Inpatient Days	-0.02	-0.03
Resident-Bed Ratio	-0.09	0.02
Disproportionate Share Percent	-0.17	0.06
Teaching Status	0.11	-0.05
Population Size of Market Area	0.21	0.03
Median Household Income	0.40	0.01
Medicare Advantage Penetration	-0.08	0.04
Primary Care Providers per 10,000 in Market	0.11	-0.01
SNF Beds per 10,000 in Market	-0.16	-0.03
Inpatient Rehabilitation Facility in Market	0.47	-0.04
Provider Market Share of the 48 potential BPCI episodes	-0.31	0.02
Herfindahl Index of Hospital Market Shares	-0.45	0.00
Percentage of total discharges in the 48 clinical episodes in 2011	0.10	-0.15
Number of discharges for clinical episode in 2011	0.31	0.06
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.32	-0.02
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.40	0.02
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.01	-0.06
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.15	0.02
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	-0.11	0.11
Unplanned readmission rate by clinical episode in 2011	0.08	0.03
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.05	0.02
All-cause mortality rate by clinical episode in 2011	-0.07	0.08
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.13	-0.03
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.54	0.02
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.05	0.03

* This variable was not included for this model.
**Caliper was 1/4th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.43 and the standard deviation was 1.24.
NA – not available as there are no participants with these characteristics.

Exhibit J.1.n: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 25, Revision of the Hip or Knee

Variable	Episode 25 (Revision of the Hip or Knee)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.16	0.17
Ownership - Government	-0.37	-0.01
Ownership - For Profit*	0.13	-0.17
Urban*	NA	NA
Bed Count	0.39	0.02
Chain Indicator	-0.14	-0.02
Medicare Days as a Percent of Total Inpatient Days	-0.06	-0.23
Resident-Bed Ratio	0.15	0.07
Disproportionate Share Percent	0.00	0.04
Teaching Status	0.54	0.15
Population Size of Market Area	0.18	-0.09
Median Household Income	0.48	0.12
Medicare Advantage Penetration	-0.09	0.11
Primary Care Providers per 10,000 in Market	0.29	0.06
SNF Beds per 10,000 in Market	0.33	-0.07
Inpatient Rehabilitation Facility in Market	0.17	-0.16
Provider Market Share of the 48 potential BPCI episodes	-0.26	0.03
Herfindahl Index of Hospital Market Shares	-0.42	0.07
Percentage of total discharges in the 48 clinical episodes in 2011	-0.01	-0.06
Number of discharges for clinical episode in 2011	0.31	-0.04
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.42	0.05
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	-0.16	-0.04
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.52	0.04
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	-0.19	-0.10
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	-0.12	-0.05
Unplanned readmission rate by clinical episode in 2011	0.17	-0.04
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.07	0.07
All-cause mortality rate by clinical episode in 2011 [1]	-0.05	-0.03
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	-0.17	-0.14
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.55	0.04
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.13	0.05

* This variable was not included for this model.
**Caliper was 1/4th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.20 and the standard deviation was 1.55.
NA – not available as there are no participants with these characteristics.
[1] The continuous mortality variable was replaced with an indicator variable for no mortality (mortality equal to zero percent).

Exhibit J.1.o: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 26, Spinal Fusion (non-cervical)

Variable	Episode 26 (Spinal Fusion (non-cervical))	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit*	-0.20	-0.20
Ownership – Government*	NA	NA
Ownership - For Profit*	0.20	0.20
Urban*	NA	NA
Bed Count	0.34	0.07
Chain Indicator*	-0.17	-0.08
Medicare Days as a Percent of Total Inpatient Days	-0.05	-0.06
Resident-Bed Ratio	0.35	0.11
Disproportionate Share Percent	0.08	-0.02
Teaching Status*	0.33	0.07
Population Size of Market Area	0.27	0.04
Median Household Income*	0.64	0.26
Medicare Advantage Penetration	-0.33	0.04
Primary Care Providers per 10,000 in Market	0.56	0.08
SNF Beds per 10,000 in Market	-0.02	0.01
Inpatient Rehabilitation Facility in Market*	0.77	0.35
Provider Market Share of the 48 potential BPCI episodes	-0.60	0.02
Herfindahl Index of Hospital Market Shares	-0.60	-0.05
Percentage of total discharges in the 48 clinical episodes in 2011	-0.22	-0.05
Number of discharges for clinical episode in 2011	0.48	0.03
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.15	0.01
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.43	-0.10
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	-0.05	0.07
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	-0.03	0.09
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	-0.19	0.03
Unplanned readmission rate by clinical episode in 2011	0.06	0.03
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.22	0.00
All-cause mortality rate by clinical episode in 2011	-0.01	-0.04
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.02	0.03
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.43	-0.02
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	0.06	0.00

*These variables were not included for this model.
**Caliper was 1/10th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.10 and the standard deviation was 1.83.
NA – not available as there are no participants with these characteristics.

Exhibit J.1.p: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 27, Hip & Femur Procedures Except Major Joint

Variable	Episode 27 (Hip & femur procedures except major joint)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.09	0.02
Ownership - Government	-0.50	-0.03
Ownership - For Profit*	0.54	0.00
Urban	0.88	-0.01
Bed Count	0.44	-0.09
Chain Indicator	-0.25	-0.07
Medicare Days as a Percent of Total Inpatient Days	-0.26	0.01
Resident-Bed Ratio	0.12	-0.07
Disproportionate Share Percent	-0.05	-0.04
Teaching Status	0.23	-0.07
Population Size of Market Area	0.36	0.01
Median Household Income	0.73	0.05
Medicare Advantage Penetration	0.13	-0.03
Primary Care Providers per 10,000 in Market	0.28	0.06
SNF Beds per 10,000 in Market	-0.43	0.05
Inpatient Rehabilitation Facility in Market	0.69	-0.01
Provider Market Share of the 48 potential BPCI episodes	-0.62	-0.01
Herfindahl Index of Hospital Market Shares	-0.77	0.00
Percentage of total discharges in the 48 clinical episodes in 2011	-0.26	0.01
Number of discharges for clinical episode in 2011	0.41	-0.05
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.23	-0.08
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.26	-0.04
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	-0.14	0.06
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.14	0.02
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	-0.24	-0.03
Unplanned readmission rate by clinical episode in 2011	0.21	-0.03
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.03	-0.01
All-cause mortality rate by clinical episode in 2011	-0.08	-0.02
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.01	0.02
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.40	0.03
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	0.12	-0.03

*These variables were not included for this model.

**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.37 and the standard deviation was 2.06.

Exhibit J.1.q: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 35, Sepsis

Variable	Episode 35 (Sepsis)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.03	0.10
Ownership – Government	-0.58	-0.01
Ownership - For Profit*	0.46	-0.10
Urban	0.89	0.10
Bed Count	0.50	-0.01
Chain Indicator	-0.20	-0.05
Medicare Days as a Percent of Total Inpatient Days	-0.31	-0.13
Resident-Bed Ratio	0.15	-0.04
Disproportionate Share Percent	-0.03	-0.03
Teaching Status	0.22	-0.04
Population Size of Market Area	0.39	-0.07
Median Household Income	0.63	0.01
Medicare Advantage Penetration	0.30	0.06
Primary Care Providers per 10,000 in Market	0.21	-0.02
SNF Beds per 10,000 in Market	-0.60	-0.01
Inpatient Rehabilitation Facility in Market	0.52	-0.05
Provider Market Share of the 48 potential BPCI episodes	-0.51	-0.03
Herfindahl Index of Hospital Market Shares	-0.66	-0.02
Percentage of total discharges in the 48 clinical episodes in 2011	-0.30	-0.07
Number of discharges for clinical episode in 2011	0.48	-0.12
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.38	-0.07
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.38	0.11
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.08	0.02
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.23	0.00
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	-0.02	0.02
Unplanned readmission rate by clinical episode in 2011	0.35	-0.04
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.03	-0.03
All-cause mortality rate by clinical episode in 2011	0.33	-0.05
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.00	0.02
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.58	-0.04
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	0.00	0.02

*These variables were not included for this model.

**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.20 and the standard deviation was 2.12.

Exhibit J.1.r: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 37, Simple Pneumonia and Respiratory Infections

Variable	Episode 37 (Simple pneumonia and respiratory infections)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.34	0.02
Ownership – Government	-0.71	-0.03
Ownership - For Profit*	0.20	-0.01
Urban	0.77	0.04
Bed Count	0.53	0.04
Chain Indicator	-0.20	-0.01
Medicare Days as a Percent of Total Inpatient Days	-0.31	0.00
Resident-Bed Ratio	0.12	0.00
Disproportionate Share Percent	-0.12	-0.07
Teaching Status	0.20	0.01
Population Size of Market Area	0.39	-0.01
Median Household Income	0.69	0.03
Medicare Advantage Penetration	0.27	0.03
Primary Care Providers per 10,000 in Market	0.34	-0.01
SNF Beds per 10,000 in Market	-0.49	-0.01
Inpatient Rehabilitation Facility in Market	0.37	0.02
Provider Market Share of the 48 potential BPCI episodes	-0.40	-0.02
Herfindahl Index of Hospital Market Shares	-0.57	-0.04
Percentage of total discharges in the 48 clinical episodes in 2011	-0.21	-0.03
Number of discharges for clinical episode in 2011	0.62	0.03
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.52	0.08
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.32	-0.05
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.25	-0.05
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.07	-0.02
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.27	0.00
Unplanned readmission rate by clinical episode in 2011	0.11	0.01
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	0.05	0.08
All-cause mortality rate by clinical episode in 2011	0.12	0.01
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	0.02	0.03
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.42	-0.04
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	-0.05	0.04

*These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.96 and the standard deviation was 1.89.

Exhibit J.1.s: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 38, Other Respiratory

Variable	Episode 38 (Other Respiratory)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.02	-0.07
Ownership – Government*	NA	NA
Ownership - For Profit*	-0.02	0.07
Urban	0.59	0.05
Bed Count	0.46	0.04
Chain Indicator	-0.33	0.03
Medicare Days as a Percent of Total Inpatient Days	-0.18	0.00
Resident-Bed Ratio	0.45	0.00
Disproportionate Share Percent	-0.05	0.05
Teaching Status	0.22	-0.03
Population Size of Market Area	0.42	0.05
Median Household Income	0.64	0.02
Medicare Advantage Penetration	0.14	0.02
Primary Care Providers per 10,000 in Market	0.20	0.03
SNF Beds per 10,000 in Market	-0.40	-0.07
Inpatient Rehabilitation Facility in Market	0.63	0.06
Provider Market Share of the 48 potential BPCI episodes	-0.44	-0.12
Herfindahl Index of Hospital Market Shares	-0.56	-0.11
Percentage of total discharges in the 48 clinical episodes in 2011	-0.12	0.01
Number of discharges for clinical episode in 2011	0.45	-0.03
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.32	-0.01
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.34	0.06
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.08	-0.07
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.08	0.04
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.08	0.03
Unplanned readmission rate by clinical episode in 2011	0.21	-0.02
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.10	0.01
All-cause mortality rate by clinical episode in 2011	0.22	-0.05
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.09	0.03
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.27	0.04
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	0.09	0.01

*These variables were not included for this model.
**Caliper was 1/4th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.06 and the standard deviation was 1.33.
NA – not available as there are no participants with these characteristics.

Exhibit J.1.t: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 44, Renal Failure

Variable	Episode 44 (Renal failure)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.00	0.00
Ownership - Government	-0.56	-0.01
Ownership - For Profit*	NA	NA
Urban	0.92	-0.01
Bed Count	0.64	-0.04
Chain Indicator	-0.12	0.01
Medicare Days as a Percent of Total Inpatient Days	-0.47	-0.06
Resident-Bed Ratio	0.05	-0.04
Disproportionate Share Percent	0.06	-0.08
Teaching Status	0.14	-0.01
Population Size of Market Area	0.62	-0.04
Median Household Income	0.73	-0.06
Medicare Advantage Penetration	0.41	-0.02
Primary Care Providers per 10,000 in Market	0.09	-0.06
SNF Beds per 10,000 in Market	-0.69	0.06
Inpatient Rehabilitation Facility in Market	0.76	0.05
Provider Market Share of the 48 potential BPCI episodes	-0.67	0.00
Herfindahl Index of Hospital Market Shares	-0.87	0.00
Percentage of total discharges in the 48 clinical episodes in 2011	-0.28	0.04
Number of discharges for clinical episode in 2011	0.64	0.04
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.22	0.07
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.50	0.02
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	-0.03	-0.04
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.13	0.00
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.05	-0.04
Unplanned readmission rate by clinical episode in 2011	0.29	-0.07
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.07	0.09
All-cause mortality rate by clinical episode in 2011	-0.29	0.02
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.12	0.02
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.54	-0.06
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.01	0.02

*These variables were not included for this model.
**Caliper was 1/3rd of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -5.16 and the standard deviation was 2.32.

Exhibit J.1.u: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 45, Nutritional and Metabolic Disorders

Variable	Episode 45 (Nutritional and metabolic disorders)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.08	0.01
Ownership - Government	-0.51	0.01
Ownership - For-Profit*	0.33	-0.02
Urban	NA	NA
Bed Count	0.51	0.04
Chain Indicator	0.17	0.21
Medicare Days as a Percent of Total Inpatient Days	-0.19	0.02
Resident-Bed Ratio	0.14	0.12
Disproportionate Share Percent	0.05	0.14
Teaching Status*	0.22	0.30
Population Size of Market Area	0.67	0.05
Median Household Income	0.55	0.03
Medicare Advantage Penetration	0.07	0.07
Primary Care Providers per 10,000 in Market	-0.14	0.07
SNF Beds per 10,000 in Market	-0.44	0.01
Inpatient Rehabilitation Facility in Market	0.35	-0.08
Provider Market Share of the 48 potential BPCI episodes	-0.26	0.10
Herfindahl Index of Hospital Market Shares	-0.56	0.07
Percentage of total discharges in the 48 clinical episodes in 2011	0.00	-0.11
Number of discharges for clinical episode in 2011	0.54	0.16
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.40	-0.03
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.31	0.22
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.34	-0.01
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.08	-0.11
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	-0.10	-0.02
Unplanned readmission rate by clinical episode in 2011[1]	0.03	0.13
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.05	0.04
All-cause mortality rate by clinical episode in 2011[2]	0.12	-0.19
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.15	0.07
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011[3]	0.50	-0.10
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	0.03	0.32

* This variable was not included for this model.

**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -5.38 and the standard deviation was 2.29.

[1] This variable was replaced with a categorical variable indicating whether the readmission rate was greater than 16 percent.

[2] This variable was replaced with a categorical variable indicating whether the mortality rate was greater than .09.

[3]This variable was replaced with a categorical variable indicating whether standardized payments were greater than $17,000.

Exhibit J.1.v: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 46, Cellulitis

Variable	Episode 46 (Cellulitis)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.14	-0.02
Ownership - Government	-0.59	-0.04
Ownership - For Profit*	0.35	0.04
Urban	0.97	0.02
Bed Count	0.74	0.05
Chain Indicator	-0.10	-0.03
Medicare Days as a Percent of Total Inpatient Days	-0.41	0.04
Resident-Bed Ratio	0.21	0.00
Disproportionate Share Percent	0.00	-0.07
Teaching Status	0.36	-0.01
Population Size of Market Area	0.49	-0.04
Median Household Income	0.68	0.00
Medicare Advantage Penetration	0.29	-0.03
Primary Care Providers per 10,000 in Market	0.21	0.02
SNF Beds per 10,000 in Market	-0.54	0.03
Inpatient Rehabilitation Facility in Market	0.45	-0.04
Provider Market Share of the 48 potential BPCI episodes	-0.44	0.01
Herfindahl Index of Hospital Market Shares	-0.70	0.00
Percentage of total discharges in the 48 clinical episodes in 2011	-0.27	0.01
Number of discharges for clinical episode in 2011	0.84	0.03
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.42	-0.02
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.37	-0.05
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	-0.04	0.04
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	0.19	0.04
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.33	-0.02
Unplanned readmission rate by clinical episode in 2011	0.14	-0.03
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	0.04	-0.01
All-cause mortality rate by clinical episode in 2011	0.03	0.08
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	0.06	0.06
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.48	-0.01
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	-0.01	0.04

*These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -5.21 and the standard deviation was 2.28.

Exhibit J.1.w: Standardized Differences Before and After Matching Model 2, Acute Care Hospitals, Episode 49, Esophagitis, Gastroenteritis and Other Digestive Disorders

Variable	Episode 49 (Esophagitis, Gastroenteritis and Other Digestive Disorders)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.55	0.10
Ownership - Government	-0.66	-0.01
Ownership - For Profit*	-0.05	-0.10
Urban	0.94	-0.09
Bed Count	0.55	0.04
Chain Indicator	-0.21	0.01
Medicare Days as a Percent of Total Inpatient Days	-0.43	-0.02
Resident-Bed Ratio	0.21	-0.01
Disproportionate Share Percent	-0.11	-0.02
Teaching Status	0.22	0.01
Population Size of Market Area	0.50	0.00
Median Household Income	0.65	-0.02
Medicare Advantage Penetration	0.35	-0.04
Primary Care Providers per 10,000 in Market	0.33	-0.05
SNF Beds per 10,000 in Market	-0.70	-0.12
Inpatient Rehabilitation Facility in Market	0.49	-0.01
Provider Market Share of the 48 potential BPCI episodes	-0.53	0.05
Herfindahl Index of Hospital Market Shares	-0.67	-0.02
Percentage of total discharges in the 48 clinical episodes in 2011	-0.23	-0.09
Number of discharges for clinical episode in 2011	0.53	0.03
Percent of patients in 2011 that went home with no post-acute care by clinical episode	-0.30	0.04
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode	0.42	-0.01
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode	0.12	-0.09
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode	-0.01	0.06
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.11	0.06
Unplanned readmission rate by clinical episode in 2011	0.10	-0.02
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	-0.05	0.03
All-cause mortality rate by clinical episode in 2011	0.03	0.03
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	-0.13	-0.13
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.58	-0.05
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	-0.29	0.00

*These variables were not included for this model.
**Caliper was 1/3rd of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -5.30 and the standard deviation was 2.20.

Exhibit J.2.a: Standardized Differences Before and After Matching Model 3, Home Health Agencies, Episode 8, Major Joint Replacement of the Lower Extremity

Variable	Episode 8 (Major Joint Replacement of the Lower Extremity)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.62	-0.13
Ownership - Government*	-0.62	0.13
Ownership - For Profit*	NA	NA
Urban	0.15	-0.09
Number of Nurses Employed by an HHA[1]	0.13	0.03
Population Size of Market Area	-0.03	-0.01
Percentage of total discharges in the 48 clinical episodes in 2011	0.70	-0.02
Number of discharges for clinical episode in 2011	0.30	-0.10
Number of HHA days per patient within 90 days after an ACH discharge by clinical episode in 2011	-0.04	0.07
Unplanned readmission rate by clinical episode in 2011	-0.12	0.00
Change in unplanned readmission rate by clinical episode from 2011 to 2012[2]	-0.22	-0.02
All-cause mortality rate by clinical episode in 2011	-0.11	0.02
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.01	0.00
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.24	0.06
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.44	-0.14

* These variables were not included for this model.
**Caliper was 1/4th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -5.37 and the standard deviation was 1.50.
NA – not available as there are no participants with these characteristics.
[1] This variable was replaced with high (greater than 15) and low (fewer than 2) indicator values.
[2] This variable was replaced with an indicator variable (greater than zero).

Exhibit J.2.b: Standardized Differences Before and After Matching Model 3, Home Health Agencies, Episode 14, Congestive Heart Failure

Variable	Episode 14 (Congestive Heart Failure)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.45	0.08
Ownership – Government*	-0.45	-0.08
Ownership - For Profit*	NA	NA
Urban	0.07	-0.05
Number of Nurses Employed by an HHA*	0.21	0.13
Population Size of Market Area	-0.22	0.03
Percentage of total discharges in the 48 clinical episodes in 2011	0.25	0.07
Number of discharges for clinical episode in 2011	0.30	0.06
Number of HHA days per patient within 90 days after an ACH discharge by clinical episode in 2011	0.34	0.08
Unplanned readmission rate by clinical episode in 2011	-0.09	-0.03
Change in unplanned readmission rate by clinical episode from 2011 to 2012[1]	0.27	0.10
All-cause mortality rate by clinical episode in 2011	-0.07	0.16
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.30	-0.12
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.12	0.03
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	0.01	0.00

* These variables were not included for this model.
**A Mahalanobis Distance Matching model was used for this episode. There is no caliper.
NA – not available as there are no participants with these characteristics.
[1] This variable was replaced with high (greater than the 75th percentile) and low (less than the 25th percentile) indicator values.

Exhibit J.2.c: Standardized Differences Before and After Matching Model 3, Home Health Agencies, Episode 37, Simple Pneumonia and Respiratory Infections

Variable	Episode 37 (Simple Pneumonia and Respiratory Infections)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	0.36	-0.11
Ownership – Government*	-0.36	0.11
Ownership - For Profit*	NA	NA
Urban	0.05	-0.06
Number of Nurses Employed by an HHA	0.13	0.01
Population Size of Market Area	-0.39	0.12
Percentage of total discharges in the 48 clinical episodes in 2011	0.28	0.03
Number of discharges for clinical episode in 2011	0.26	0.08
Number of HHA days per patient within 90 days after an ACH discharge by clinical episode in 2011	0.04	0.00
Unplanned readmission rate by clinical episode in 2011	0.13	0.13
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.00	-0.08
All-cause mortality rate by clinical episode in 2011	0.38	0.13
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.37	0.08
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.26	0.05
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	0.00	0.03

* These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.39 and the standard deviation was 0.93.
NA – not available as there are no participants with these characteristics.

Exhibit J.3.a: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 4, Urinary Tract Infection

Variable	Episode 4 (Urinary Tract Infection)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.21	0.03
Ownership - Government	-0.19	-0.02
Ownership - For Profit*	0.27	-0.02
Urban Location	0.28	0.01
Bed Count	0.01	0.05
Chain Indicator	0.13	-0.03
SNF in Hospital	-0.14	-0.04
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	0.28	0.00
Population Size of Market Area	0.07	0.00
Median Household Income	0.42	0.05
Medicare Advantage Penetration	0.00	-0.02
SNF Beds per 10,000 in Market	-0.09	-0.07
Inpatient Rehabilitation Facility in Market	0.23	-0.01
Provider Market Share of the 48 potential BPCI episodes	-0.18	-0.02
Herfindahl Index of Hospital Market Shares	-0.21	0.00
Herfindahl Index of SNF Market Shares	-0.26	0.00
Percentage of total discharges in the 48 clinical episodes in 2011	-0.46	-0.02
Number of discharges for clinical episode in 2011	0.33	0.06
Number of institutional PAC days per patient with 90 days after an ACH by clinical episode in 2011	-0.03	-0.00
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	-0.03	0.00
Unplanned readmission rate by clinical episode in 2011	0.10	-0.05
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.02	0.02
All-cause mortality rate by clinical episode in 2011	0.10	0.02
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.03	-0.03
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.09	-0.04
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.08	0.03

* These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.99 and the standard deviation was 0.99.

Exhibit J.3.b: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 5, Stroke

Variable	Episode 5 (Stroke)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.35	-0.01
Ownership – Government*	NA	NA
Ownership - For Profit*	0.35	0.01
Urban Location	0.37	0.03
Bed Count	0.03	-0.02
Chain Indicator	-0.10	-0.01
SNF in Hospital	-0.22	0.01
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	0.13	0.02
Population Size of Market Area	0.14	0.06
Median Household Income	0.23	-0.02
Medicare Advantage Penetration	0.04	-0.02
SNF Beds per 10,000 in Market	-0.18	0.01
Inpatient Rehabilitation Facility in Market	0.11	0.10
Provider Market Share of the 48 potential BPCI episodes	-0.22	-0.03
Herfindahl Index of Hospital Market Shares	-0.20	-0.04
Herfindahl Index of SNF Market Shares	-0.31	-0.04
Percentage of total discharges in the 48 clinical episodes in 2011	-0.37	0.03
Number of discharges for clinical episode in 2011	0.36	0.00
Number of institutional PAC days per patient with 90 days after an ACH by clinical episode in 2011	0.24	-0.02
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	0.24	-0.03
Unplanned readmission rate by clinical episode in 2011	0.08	0.05
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.01	-0.01
All-cause mortality rate by clinical episode in 2011	-0.21	-0.01
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.27	-0.01
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.42	0.00
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.25	0.01

* These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.01 and the standard deviation was 1.24.
NA – not available as there are no participants with these characteristics.

Exhibit J.3.c: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 6, Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma

Variable	Episode 6 (Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.32	0.00
Ownership - Government	-0.17	0.03
Ownership - For Profit*	0.38	-0.01
Urban Location	0.19	-0.02
Bed Count	-0.04	-0.03
Chain Indicator	-0.11	-0.02
SNF in Hospital	-0.29	0.04
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	0.29	-0.02
Population Size of Market Area	-0.07	-0.01
Median Household Income	0.22	0.04
Medicare Advantage Penetration	-0.01	-0.02
SNF Beds per 10,000 in Market	-0.18	0.00
Inpatient Rehabilitation Facility in Market	0.14	-0.02
Provider Market Share of the 48 potential BPCI episodes	-0.03	0.02
Herfindahl Index of Hospital Market Shares	-0.14	0.02
Herfindahl Index of SNF Market Shares	-0.12	0.04
Percentage of total discharges in the 48 clinical episodes in 2011	-0.26	-0.03
Number of discharges for clinical episode in 2011	0.27	-0.01
Number of institutional PAC days per patient with 90 days after an ACH by clinical episode in 2011	0.03	0.06
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	-0.01	0.05
Number of HHA days per patient within 90 days after an ACH discharge by clinical episode in 2011	0.28	0.14
Unplanned readmission rate by clinical episode in 2011	0.14	0.04
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.17	-0.01
All-cause mortality rate by clinical episode in 2011	0.02	0.00
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.28	0.00
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.36	0.06
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.10	0.02

* These variables were not included for this model.
**Caliper was 1/10th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.92 and the standard deviation was 1.13.

Exhibit J.3.d: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 8, Major Joint Replacement of the Lower Extremity

Variable	Episode 8 (Major Joint Replacement of the Lower Extremity)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.03	-0.02
Ownership - Government	-0.24	-0.03
Ownership - For Profit*	0.11	0.02
Urban Location	0.34	0.03
Bed Count	-0.05	0.02
Chain Indicator	0.14	-0.07
SNF in Hospital	-0.30	-0.02
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	0.18	0.02
Population Size of Market Area	-0.09	0.04
Median Household Income	0.20	0.03
Medicare Advantage Penetration	0.18	-0.01
SNF Beds per 10,000 in Market	-0.08	-0.03
Inpatient Rehabilitation Facility in Market	-0.05	0.04
Provider Market Share of the 48 potential BPCI episodes	-0.12	-0.03
Herfindahl Index of Hospital Market Shares	-0.18	-0.05
Herfindahl Index of SNF Market Shares	-0.21	-0.04
Percentage of total discharges in the 48 clinical episodes in 2011	-0.04	0.02
Number of discharges for clinical episode in 2011	0.10	-0.02
Number of institutional PAC days per patient with 90 days after an ACH by clinical episode in 2011	0.00	0.02
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	0.00	0.02
Number of HHA days per patient within 90 days after an ACH discharge by clinical episode in 2011	0.09	0.13
Unplanned readmission rate by clinical episode in 2011	-0.02	0.01
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.02	-0.03
All-cause mortality rate by clinical episode in 2011	0.05	0.01
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.03	-0.03
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.06	0.04
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.17	-0.04

* These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.53 and the standard deviation was 0.96.

Exhibit J.3.e: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 14, Congestive Heart Failure

Variable	Episode 14 (Congestive Heart Failure)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.23	-0.01
Ownership – Government*	NA	NA
Ownership - For Profit*	0.23	0.01
Urban Location	0.33	0.00
Bed Count	0.02	-0.04
Chain Indicator	0.08	-0.02
SNF in Hospital	-0.19	-0.04
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	0.16	0.02
Population Size of Market Area	-0.01	-0.01
Median Household Income	0.30	0.00
Medicare Advantage Penetration	0.07	-0.01
SNF Beds per 10,000 in Market	0.05	0.03
Inpatient Rehabilitation Facility in Market	0.04	-0.02
Provider Market Share of the 48 potential BPCI episodes	-0.19	-0.04
Herfindahl Index of Hospital Market Shares	-0.23	0.01
Herfindahl Index of SNF Market Shares	-0.30	-0.02
Percentage of total discharges in the 48 clinical episodes in 2011	-0.29	-0.03
Number of discharges for clinical episode in 2011	0.35	-0.05
Number of institutional PAC days per patient with 90 days after an ACH by clinical episode in 2011	0.07	-0.01
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	0.06	0.00
Number of HHA days per patient within 90 days after an ACH discharge by clinical episode in 2011	0.11	-0.01
Unplanned readmission rate by clinical episode in 2011	0.10	-0.01
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	-0.11	0.02
All-cause mortality rate by clinical episode in 2011	-0.07	-0.04
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	-0.02	0.06
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.19	-0.01
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	-0.19	-0.01

* These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.81 and the standard deviation was 1.04.
NA – not available as there are no participants with these characteristics.

Exhibit J.3.f: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 23, Medical Non-Infectious Orthopedic

Variable	Episode 23 (Medical Non-Infectious Orthopedic)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.50	-0.02
Ownership - Government	-0.10	0.04
Ownership - For Profit*	0.52	0.00
Urban Location	0.18	-0.05
Bed Count	-0.11	0.07
Chain Indicator	-0.07	0.02
SNF in Hospital	0.00	0.00
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	-0.07	0.04
Population Size of Market Area	0.00	0.07
Median Household Income	0.17	-0.07
Medicare Advantage Penetration	0.20	0.00
SNF Beds per 10,000 in Market	-0.05	0.00
Inpatient Rehabilitation Facility in Market	0.15	-0.03
Provider Market Share of the 48 potential BPCI episodes	-0.26	0.06
Herfindahl Index of Hospital Market Shares	-0.34	0.05
Herfindahl Index of SNF Market Shares	-0.27	0.07
Percentage of total discharges in the 48 clinical episodes in 2011	-0.41	-0.04
Number of discharges for clinical episode in 2011	0.30	0.08
Number of institutional PAC days per patient with 90 days after an ACH by clinical episode in 2011	0.23	0.05
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	0.23	0.06
Number of HHA days per patient within 90 days after an ACH discharge by clinical episode in 2011	0.08	0.00
Unplanned readmission rate by clinical episode in 2011	0.18	-0.07
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.06	0.00
All-cause mortality rate by clinical episode in 2011	-0.14	-0.03
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.03	-0.01
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.36	0.01
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.17	0.01

* These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.73 and the standard deviation was 0.99.

Exhibit J.3.g: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 27, Hip & Femur Procedures Except Major Joint

Variable	Episode 27 (Hip & Femur Procedures Except Major Joint)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.02	0.05
Ownership – Government*	NA	NA
Ownership - For Profit*	0.09	-0.05
Urban Location	0.27	0.04
Bed Count	-0.10	0.03
Chain Indicator	0.05	0.00
SNF in Hospital	-0.28	-0.02
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	0.25	-0.02
Population Size of Market Area	-0.03	0.05
Median Household Income	0.29	0.06
Medicare Advantage Penetration	0.10	-0.01
SNF Beds per 10,000 in Market	-0.08	-0.03
Inpatient Rehabilitation Facility in Market	0.06	0.05
Provider Market Share of the 48 potential BPCI episodes	-0.01	-0.02
Herfindahl Index of Hospital Market Shares	-0.15	0.00
Herfindahl Index of SNF Market Shares	-0.13	-0.02
Percentage of total discharges in the 48 clinical episodes in 2011	0.02	0.01
Number of discharges for clinical episode in 2011	0.07	0.02
Number of institutional PAC days per patient with 90 days after an ACH by clinical episode in 2011	0.11	-0.01
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	0.12	-0.01
Unplanned readmission rate by clinical episode in 2011	0.15	-0.04
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	-0.16	0.00
All-cause mortality rate by clinical episode in 2011	0.17	-0.01
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	-0.08	0.04
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.19	-0.02
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	-0.16	-0.01

* These variables were not included for this model.
**Caliper was 1/10th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.18 and the standard deviation was 1.05.
NA – not available as there are no participants with these characteristics.

Exhibit J.3.h: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 35, Sepsis

Variable	Episode 35 (Sepsis)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.37	0.02
Ownership – Government*	NA	NA
Ownership - For Profit*	0.37	-0.02
Urban Location	0.31	0.00
Bed Count	-0.09	0.06
Chain Indicator	0.03	-0.01
SNF in Hospital	-0.21	0.04
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	0.20	-0.06
Population Size of Market Area	0.01	-0.04
Median Household Income	0.30	-0.02
Medicare Advantage Penetration	0.16	-0.01
SNF Beds per 10,000 in Market	-0.19	0.01
Inpatient Rehabilitation Facility in Market	-0.05	-0.01
Provider Market Share of the 48 potential BPCI episodes	-0.14	0.02
Herfindahl Index of Hospital Market Shares	-0.16	0.00
Herfindahl Index of SNF Market Shares	-0.23	0.00
Percentage of total discharges in the 48 clinical episodes in 2011	-0.21	0.01
Number of discharges for clinical episode in 2011	0.36	0.09
Number of institutional PAC days per patient with 90 days after an ACH by clinical episode in 2011	0.03	0.04
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	0.05	0.03
Unplanned readmission rate by clinical episode in 2011	0.11	0.02
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	-0.07	0.00
All-cause mortality rate by clinical episode in 2011	-0.01	-0.01
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	-0.01	0.01
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.22	0.03
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	-0.02	0.05

* These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.11 and the standard deviation was 0.96.
NA – not available as there are no participants with these characteristics.

Exhibit J.3.i: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 37, Simple Pneumonia and Respiratory Infections

Variable	Episode 37 (Simple Pneumonia and Respiratory Infections)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.17	0.03
Ownership - Government	-0.26	0.05
Ownership - For Profit*	0.27	-0.04
Urban Location	0.38	-0.02
Bed Count	0.13	-0.01
Chain Indicator	0.05	0.01
SNF in Hospital	-0.25	0.03
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	0.25	-0.01
Population Size of Market Area	0.13	-0.01
Median Household Income	0.44	0.00
Medicare Advantage Penetration	0.06	-0.03
SNF Beds per 10,000 in Market	-0.16	0.05
Inpatient Rehabilitation Facility in Market	0.04	0.00
Provider Market Share of the 48 potential BPCI episodes	-0.13	0.02
Herfindahl Index of Hospital Market Shares	-0.24	0.04
Herfindahl Index of SNF Market Shares	-0.22	0.03
Percentage of total discharges in the 48 clinical episodes in 2011	-0.30	0.00
Number of discharges for clinical episode in 2011	0.26	0.05
Number of institutional PAC days per patient within 90 days after an ACH by clinical episode in 2011	-0.04	0.00
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	-0.03	0.01
Unplanned readmission rate by clinical episode in 2011	0.13	0.00
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	-0.06	-0.03
All-cause mortality rate by clinical episode in 2011	-0.13	-0.02
Change in all-cause mortality rate by clinical episode from 2011 to 2012*	0.03	-0.01
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.16	-0.01
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012*	-0.07	-0.03

* These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.12 and the standard deviation was 1.02.

Exhibit J.3.j: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 38, Other Respiratory

Variable	Episode 38 (Other Respiratory)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.33	-0.01
Ownership - Government*	NA	NA
Ownership - For Profit*	0.33	0.01
Urban Location	0.22	0.04
Bed Count	-0.31	0.01
Chain Indicator	-0.17	0.01
SNF in Hospital	-0.16	-0.02
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	0.12	0.00
Population Size of Market Area	-0.08	0.05
Median Household Income	0.16	0.01
Medicare Advantage Penetration	0.01	0.11
SNF Beds per 10,000 in Market	-0.04	-0.03
Inpatient Rehabilitation Facility in Market	0.17	0.03
Provider Market Share of the 48 potential BPCI episodes	-0.13	-0.02
Herfindahl Index of Hospital Market Shares	-0.16	0.00
Herfindahl Index of SNF Market Shares	-0.24	0.00
Percentage of total discharges in the 48 clinical episodes in 2011	-0.08	-0.03
Number of discharges for clinical episode in 2011	0.27	-0.02
Number of institutional PAC days per patient with 90 days after an ACH by clinical episode in 2011	0.09	-0.01
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	0.06	-0.03
Unplanned readmission rate by clinical episode in 2011	0.26	0.03
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.07	-0.03
All-cause mortality rate by clinical episode in 2011	-0.03	0.00
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.00	0.00
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.25	-0.01
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	0.01	0.04

* These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.55 and the standard deviation was 1.08.
NA – not available as there are no participants with these characteristics.

Exhibit J.3.k: Standardized Differences Before and After Matching Model 3, Skilled Nursing Facilities, Episode 44, Renal Failure

Variable	Episode 44 (Renal Failure)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit	-0.41	-0.03
Ownership - Government*	NA	NA
Ownership - For Profit*	0.41	0.03
Urban Location	0.28	0.03
Bed Count	-0.08	0.05
Chain Indicator	-0.20	-0.01
SNF in Hospital	-0.19	-0.02
Number of points out of 5 in overall rating and in three areas: Quality, Survey/Health Inspections, and Staffing (from Nursing Home Compare)	0.11	-0.06
Population Size of Market Area	-0.02	0.03
Median Household Income	0.15	-0.02
Medicare Advantage Penetration	-0.05	0.00
SNF Beds per 10,000 in Market	-0.03	-0.01
Inpatient Rehabilitation Facility in Market	0.01	0.00
Provider Market Share of the 48 potential BPCI episodes	0.01	0.06
Herfindahl Index of Hospital Market Shares	-0.17	0.05
Herfindahl Index of SNF Market Shares	-0.05	0.06
Percentage of total discharges in the 48 clinical episodes in 2011	-0.26	0.03
Number of discharges for clinical episode in 2011	0.42	-0.02
Number of institutional PAC days per patient with 90 days after an ACH by clinical episode in 2011	0.08	0.01
Number of SNF days per patient within 90 days after an ACH by clinical episode in 2011	0.05	0.01
Number of HHA days per patient within 90 days after an ACH discharge by clinical episode in 2011	0.18	0.03
Unplanned readmission rate by clinical episode in 2011	-0.01	0.02
Change in unplanned readmission rate by clinical episode from 2011 to 2012	0.06	-0.01
All-cause mortality rate by clinical episode in 2011	-0.09	-0.04
Change in all-cause mortality rate by clinical episode from 2011 to 2012	0.02	0.05
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.16	0.02
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.13	-0.01

* These variables were not included for this model.
**Caliper was 1/20th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -3.97 and the standard deviation was 1.00.

Exhibit J.4.a: Standardized Differences Before and After Matching Model 4, Acute Care Hospitals, Episode 7, Coronary Artery Bypass Graft

Variable	Episode 7 (Coronary Artery Bypass Graft)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit*	-0.51	-0.55
Ownership - Government*	NA	NA
Ownership - For Profit*	0.51	0.55
Urban	NA	NA
Bed Count*	0.58	0.25
Chain Indicator*	0.05	-0.34
Medicare Days as a Percent of Total Inpatient Days*	-0.82	-0.70
Resident-Bed Ratio*	0.11	-0.08
Disproportionate Share Percent*	0.38	0.09
Teaching Status*	0.34	0.33
Population Size of Market Area*	0.28	0.34
Median Household Income*	-0.09	0.00
Medicare Advantage Penetration*	0.61	0.43
Primary Care Providers per 10,000 in Market*	-0.15	-0.34
SNF Beds per 10,000 in Market*	-0.30	-0.32
Inpatient Rehabilitation Facility in Market*	-0.06	-0.01
Provider Market Share of the 48 potential BPCI episodes*	0.03	-0.33
Herfindahl Index of Hospital Market Shares*	-0.12	-0.42
Percentage of total discharges in the 48 clinical episodes in 2011*	0.22	0.25
Number of discharges for clinical episode in 2011*	0.46	0.09
Percent of patients in 2011 that went home with no post-acute care by clinical episode*	-0.37	-0.55
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode*	0.46	0.38
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode*	-0.66	-0.66
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode*	0.20	0.23
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.38	0.60
Unplanned readmission rate by clinical episode in 2011	0.38	0.00
Change in unplanned readmission rate by clinical episode from 2011 to 2012*	-0.40	-0.10
All-cause mortality rate by clinical episode in 2011	0.37	-0.01
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.51	0.04
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	0.41	0.02
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.31	0.09

*These variables were not included for this model.
**No caliper as Coarsened Exact Matching was used.
NA – not available as there are no participants with these characteristics.

Exhibit J.4.b: Standardized Differences Before and After Matching Model 4, Acute Care Hospitals, Episode 8, Major Joint Replacement of the Lower Extremity

Variable	Episode 8 (Major Joint Replacement of the Lower Extremity)	
	Standardized Difference Before Matching	Standardized Difference After Matching**
Ownership - Non-Profit*	0.31	-0.38
Ownership - Government*	NA	NA
Ownership - For Profit*	0.31	0.38
Urban	0.59	0.00
Bed Count*	0.82	0.40
Chain Indicator*	-0.34	-0.35
Medicare Days as a Percent of Total Inpatient Days*	-1.08	-0.90
Resident-Bed Ratio*	0.27	0.22
Disproportionate Share Percent*	0.32	0.36
Teaching Status*	0.06	-0.05
Population Size of Market Area*	0.24	0.35
Median Household Income*	0.40	0.31
Medicare Advantage Penetration*	0.84	0.80
Primary Care Providers per 10,000 in Market*	0.17	-0.04
SNF Beds per 10,000 in Market*	-0.85	-0.69
Inpatient Rehabilitation Facility in Market*	0.27	0.22
Provider Market Share of the 48 potential BPCI episodes*	-0.20	0.05
Herfindahl Index of Hospital Market Shares*	-0.45	-0.20
Percentage of total discharges in the 48 clinical episodes in 2011*	-0.48	-0.31
Number of discharges for clinical episode in 2011*	0.39	-0.14
Percent of patients in 2011 that went home with no post-acute care by clinical episode*	0.24	0.18
Percent of patients in 2011 that used an inpatient rehabilitation facility as first post-acute care setting by clinical episode*	-0.31	-0.20
Percent of patients in 2011 that used a SNF as first post-acute care setting by clinical episode*	-0.29	-0.21
Percent of patients in 2011 that used a long-term care hospital as first post-acute care setting by clinical episode*	-0.12	-0.02
Percent of patients in 2011 that went home with HHA services as first post-acute care setting by clinical episode*	0.25	0.12
Unplanned readmission rate by clinical episode in 2011	-0.17	0.09
Change in unplanned readmission rate by clinical episode from 2011 to 2012	-0.10	-0.05
All-cause mortality rate by clinical episode in 2011	0.24	0.11
Change in all-cause mortality rate by clinical episode from 2011 to 2012	-0.13	-0.08
Average 90-day standardized Medicare Part A payment amount by clinical episode in 2011	-0.21	0.00
Change in average 90-day standardized Medicare Part A payment amount by clinical episode from 2011 to 2012	-0.07	0.04

* These variables were not included for this model.
**Caliper was 1/4th of the standard deviation of the log-odds propensity score. The mean log-odds propensity score was -4.87 and the standard deviation was 0.95.
NA – not available as there are no participants with these characteristics.

Appendix K: Claim-based and Assessment-based Outcome Definitions

We evaluate the impact of BPCI on the utilization of health care services, payment, quality of care, and unintended consequences by measuring a number of outcomes within each of these domains. **Exhibit K.1** includes the complete list of claim-based outcomes included in our analysis, which includes the outcome name and description, organized by domain.

Exhibit K.1: Claim-based Outcomes Definitions

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Quality	Unplanned Readmission Rate following anchor hospital discharge (Models 2 & 4)	Episodes with one or more unplanned, all-cause readmissions after anchor discharge for any eligible condition	30-day Post-discharge, 90-day Post-discharge	Binary outcome (1= at least one readmission during measurement period; 0= no eligible readmissions during measurement period). Eligible readmissions are inpatient prospective payment system claims with a DRG not on the list of excluded DRGs for the given clinical episode. Measure was based on specifications for the NQF-endorsed all-cause unplanned readmission measure (NQF measure 1789). Similar to the NQF-endorsed measure, we excluded planned admissions, based on AHRQ Clinical Classification System Procedure and Diagnoses codes.	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) are discharged from the anchor hospital stay in accordance with medical advice; 5) are living at the time of anchor discharge; 6) have a measurement period that ends on or before December 31, 2015.
Quality	Unplanned Readmission Rate following PAC admission (Model 3)	Episodes with one or more unplanned, all-cause readmissions after PAC admission for any eligible condition	First 30 days of the episode, first 90 days of the episode	Binary outcome (1= at least one readmission during measurement period; 0= no eligible readmissions during measurement period). Eligible readmissions are inpatient prospective payment system claims with a DRG not on the list of excluded DRGs for the given clinical episode. Readmissions must be unplanned, based on AHRQ Clinical Classification System Procedure and Diagnoses codes.	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to qualifying admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) are discharged from the qualifying inpatient hospital in accordance with medical advice; 5) are living at the time of PAC admission; 6) have a measurement period that ends on or before December 31, 2015.

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Quality	Emergency Department (ED) use without hospitalization following anchor hospital stay (Models 2 & 4)	Episodes with one or more ED visit for which the beneficiary requires medical treatment but is not admitted to the hospital after discharge from an anchor hospital stay	30-day Post-discharge, 90-day Post-discharge	Binary outcome (1= at least one ED visit without readmission during measurement period; 0= no eligible ED visits without readmission during measurement period). Eligible ED visits are outpatient claims with a code indicating the beneficiary used the emergency room but was not admitted.	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) are discharged from the anchor hospital in accordance with medical advice; 5) are living at the time of anchor discharge; 6) have a measurement period that ends on or before December 31, 2015
Quality	Emergency Department (ED) use without hospitalization following PAC admission (Model 3)	Episodes with one or more ED visit for which the beneficiary requires medical treatment but is not admitted to the hospital after PAC admission	First 30 days of the episode, first 90 days of the episode	Binary outcome (1= at least one ED visit without hospital readmission during measurement period; 0= no eligible ED visits without hospital readmission during measurement period). Eligible ED visits are outpatient claims with a code indicating the beneficiary used the emergency room but was not admitted.	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to qualifying admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) are discharged from the qualifying inpatient hospital in accordance with medical advice; 5) are living at the time of PAC admission; 6) have a measurement period that ends on or before December 31, 2015.
Quality	Acute hospital all-cause inpatient mortality (Model 4)	Death from any cause during anchor hospital stay	Acute	If date of death is on or before discharge date from the anchor hospital stay (including transfers), then mortality outcome =1.	Beneficiaries who: 1) have complete FFS enrollment history six months prior to anchor admission; 2) were not enrolled in the Medicare Hospice program in the six months prior to the anchor admission; 3) have reliable mortality status; 4) have non-missing age & gender data; 5) are discharged from the anchor hospital in accordance with medical advice. *For beneficiaries with multiple anchor hospitalizations, one hospitalization per quarter is randomly selected for inclusion in this measure.*

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Quality	All-cause mortality (Models 2 and 4)	Death from any cause during measurement period	30-day Post-discharge, 90-day Post-discharge	If date of death occurs during measurement period, then mortality outcome =1.	Beneficiaries who: 1) have complete FFS enrollment history six months prior to anchor admission; 2) were not enrolled in the Medicare Hospice program in the six months prior to the anchor admission; 3) have reliable mortality status; 4) maintain FFS A&B enrollment throughout the measurement period or until death; 5) have non-missing age & gender data; 6) are discharged from the anchor hospital in accordance with medical advice; 7) are living at the time of anchor discharge; 8) have a measurement period that ends on or before December 31, 2015. *For beneficiaries with multiple anchor hospitalizations, one hospitalization per quarter is randomly selected for inclusion in this measure.*
Quality	All-cause mortality (Model 3)	Death from any cause during measurement period	First 30 days of the episode, first 90 days of the episode	If date of death occurs during measurement period, then mortality outcome =1.	Beneficiaries who: 1) have complete FFS enrollment history six months prior to qualifying admission; 2) were not enrolled in the Medicare Hospice program in the six months prior to the qualifying admission; ; 3) have reliable mortality status; 4) maintain FFS A&B enrollment throughout the measurement period or until death; 5) have non-missing age & gender data; 6) are discharged from the qualifying inpatient hospital in accordance with medical advice; 7) have a measurement period that ends on or before December 31, 2015. *For beneficiaries with multiple qualifying hospitalizations, one hospitalization per quarter is randomly selected for inclusion in this measure.*

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Utilization	Acute Inpatient Length of Stay (All Models)	Total number of inpatient days during the anchor stay (Models 2 and 4) or qualifying stay (Model 3)	Acute	For Model 2 and Model 4, the number of days between the anchor admission date and the anchor discharge date (including any transfer stays). For Model 3, the number of days between the qualifying stay admission date and the qualifying stay discharge date (including any transfer stays). The upper end of this data is winsorized[1].	Beneficiaries who have: 1) complete FFS enrollment history six months prior to anchor/qualifying admission; 2) have non-missing age & gender data.
Utilization	Number of days in a SNF (All Models)	Total number of SNF days of care	90-day Post-discharge	The total number of days of skilled nursing facility (SNF) care (not necessarily consecutive) during the measurement period. The outcome is limited to patients who had at least one SNF day during the measurement period.	Beneficiaries who: 1) are alive at the time of anchor/qualifying discharge; 2) have non-missing age & gender data; 3) have a complete FFS enrollment history six months prior to anchor/qualifying admission; 4) maintain FFS A&B enrollment throughout the measurement period or until death; 5) have a measurement period that ends on or before December 31, 2015.
Utilization	Total Number of Post-Acute Care Days in an Institutional Setting (All Models)	Total number of days of post-acute care in an institutional setting (SNF, IRF, LTCH)	90-day Post-discharge	The total number of days of care (not necessarily consecutive) during the measurement period in all of the following PAC settings: skilled nursing facility (SNF), long-term care hospital (LTCH), and inpatient rehabilitation facility (IRF). The outcome is limited to patients who had at least one day of institutional care during the measurement period.	Beneficiaries who: 1) are alive at the time of anchor/qualifying discharge; 2) have non-missing age & gender data; 3) have a complete FFS enrollment history six months prior to anchor/qualifying admission; 4) maintain FFS A&B enrollment throughout the measurement period or until death; 5) have a measurement period that ends on or before December 31, 2015.

[1] Acute inpatient length of stay is winsorized at the 99th percentile for all models by quarter and anchor DRG.

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Utilization	Number of Home Health visits (All Models)	Total number of home health visits	90-day post-discharge	The total number of home health visits on home health claims during the period of observation. The outcome is limited to patients who had at least one home health visit during the measurement period.	Beneficiaries who: 1) are alive at the time of anchor/qualifying discharge; 2) have non-missing age & gender data; 3) have a complete FFS enrollment history six months prior to anchor/qualifying admission; 4) maintain FFS A&B enrollment throughout the measurement period or until death; 5) have a measurement period that ends on or before December 31, 2015.
Utilization	First PAC setting following anchor discharge (Models 2 & 4)	The first PAC setting following inpatient discharge. Institutional PAC use must have started within 5 days of discharge from anchor hospital or home health must have started within 14 days of discharge from anchor hospital.	The first institutional PAC setting used within 5 days of anchor hospital discharge (SNF, or IRF) or HHA use if started within 14 days of anchor discharge.	The first PAC setting following inpatient discharge. Identified as: ▪ Admission to an IRF (freestanding facility or distinct unit within acute hospital) or SNF within 5 days of discharge from an acute hospital. ▪ Home health care within 14 days of discharge from an acute hospital. ▪ All other patient discharges are classified as discharges to a residential care setting (i.e. "home with none"). Possible outcomes include SNF, IRF, HHA, or home with none.	Beneficiaries who: 1) have complete FFS enrollment history six months prior to anchor admission; 2) have non-missing age & gender data; 3) are alive at the time of anchor discharge; 4) maintain FFS A&B enrollment throughout the measurement period or until death; 5) have a measurement period that ends on or before December 31, 2015.
Utilization	Discharged to any PAC (including HHA) (Models 2 & 4)	The proportion of BPCI episodes that were discharged from the anchor hospital to any PAC, including HHA.	Within 14 days of discharge from anchor hospital	The proportion of episodes where the first PAC setting (defined above) was equal to SNF, LTCH, IRF, or HHA. The denominator includes all episodes.	Beneficiaries who: 1) have complete FFS enrollment history six months prior to anchor admission; 2) have non-missing age & gender data; 3) are alive at the time of anchor discharge; 4) maintain FFS A&B enrollment throughout the measurement period or until death; 5) have a measurement period that ends on or before December 31, 2015.

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Utilization	Discharged to institutional post-acute care setting relative to discharged home with home health (Models 2 & 4)	The proportion of BPCI episodes discharged from the anchor hospital to an institutional PAC among BPCI episodes who were discharged to any PAC (including HHA).	Within 14 days of discharge from anchor hospital	The proportion of episodes where the first PAC setting (defined above) was equal to SNF, LTCH, or IRF. The denominator includes episodes where first PAC setting was equal to SNF, LTCH, IRF, or HHA.	Beneficiaries who: 1) have complete FFS enrollment history six months prior to anchor admission; 2) have non-missing age & gender data; 3) are alive at the time of anchor discharge; 4) maintain FFS A&B enrollment throughout the measurement period or until death; 5) have a measurement period that ends on or before December 31, 2015.
Patient Mix/Shifting	MS-DRG case-mix index (All Models)	Weighted relative value of MS-DRGs for anchor admissions or for qualifying admissions that resulted in Model 3 episodes	N/A	MS-DRG weights were used to assign weights to anchor stays by linking by MS-DRG and fiscal year. The geometric mean of the weights of all episodes' anchor MS-DRGs was computed for each provider (episode initiator), DRG group, and quarter.	All patients
Patient Mix/Shifting	Home Health Agency case-mix index (Models 2 & 3)	Weighted relative value of Home Health Resource Use Groups (RUGs) across HHA users	N/A	HHA RUG weights and HIPPS Code were used to assign weights to HHA PAC stays by linking to the PAC claim by RUG and year. The geometric mean of the weights of all HHA episodes was computed for each provider (episode initiator), DRG group, and quarter.	Patients with a HHA episode as the first PAC setting within 14 days of anchor discharge for Model 2; all patients treated by a Model 3 episode initiator in a HHA
Patient Mix/Shifting	Skilled Nursing Facility case-mix index (Models 2 & 3)	Weighted relative value of Resource Use Groups IV across SNF users	N/A	SNF RUG IV weights were used to assign weights to SNF PAC stays by linking by SNF RUG IV and fiscal year. The simple mean, weighted by units of each RUG, of the weights of all SNF RUGs for a SNF stay was computed for each episode. The geometric mean of the weights of all SNF episodes was computed for each provider (episode initiator), DRG group, and quarter.	Patients with a SNF episode as the first PAC setting within 5 days of anchor discharge for Model 2; all patients treated by a Model 3 episode initiator in a SNF

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Patient Mix/Shifting	Long-term Care Hospital case-mix index (Models 2 & 3)	Weighted relative value of Long-term Care Diagnosis Related Groups (MS-LTCH-DRGs) of LTCH users	N/A	LTCH DRG weights were used to assign weights to LTCH PAC stays by linking to the PAC claim by DRG and fiscal year. The geometric mean of the weights of all LTCH episodes was computed for each provider (episode initiator), DRG group, and quarter.	Patients with a LTCH episode as the first PAC setting within 5 days of anchor discharge for Model 2; all patients treated by a Model 3 episode initiator in a LTCH
Patient Mix/Shifting	Inpatient Rehabilitation Facility case-mix index (Models 2 & 3)	Weighted relative value of Case-Mix Groups (CMGs) across IRF users	N/A	IRF RUG weights and HCPCS codes were used to assign weights to IRF PAC stays by linking to the PAC claim by RUG and fiscal year. Comorbidity tier was determined from the first character of the HCPCS code. The geometric mean of the weights of all IRF episodes was computed for each provider (episode initiator), DRG group, and quarter.	Patients with an IRF episode as the first PAC setting within 5 days of anchor discharge for Model 2; all patients treated by a Model 3 episode initiator in an IRF
Patient Mix/Shifting	Rate of outpatient APCs of similar BPCI episodes (Models 2 & 4)	Rate of outpatient APCs similar to BPCI episodes per hospital	Claims finishing within quarter	The number of claims with a related APC was calculated per provider (episode initiator), and divided by the sum of the number of claims with related APC and number of BPCI episodes.	Patients with an inpatient admission included in BPCI or patients with an outpatient visit related to providers' selected MS-DRGs
Patient Mix/Shifting	Rate of Inpatient Admissions of Related but Non-BPCI MS-DRGs (Models 2 & 4)	Inpatient admissions of related but non-BPCI MS-DRGs as a proportion of the sum of BPCI admissions and inpatient admissions of related but non-BPCI MS-DRGs	Claims finishing within quarter	The number of discharges with a related MS-DRG to the providers' selected BPCI MS-DRGs was summed per provider (episode initiator), DRG group, quarter, and divided by the sum of the number of discharges with related MS-DRGs and number of discharges with BPCI MS-DRGs selected by the provider.	Patients with an inpatient admission included in BPCI or patients with an inpatient admission related to providers' selected BPCI MS-DRGs

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Payment	Medicare Part A Standardized Allowed Amount (various settings) (All Models)	Average Medicare Part A standardized allowed amount, converted to 2015 dollars using Medical CPI, across various settings and totaled within the measurement period	90-day Post-anchor/ qualifying stay discharge	The sum of Medicare payment and beneficiary out-of-pocket amounts for Part A health care services provided during the anchor stay, readmissions, SNF, HHA, IRF, and LTCH, trended to 2015. Payment in the lower/upper ends are winsorized[2].	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor/qualifying admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part A payments during the bundle and acute period.
Payment	Medicare Part B Standardized Allowed Amount (various service categories) (All Models)	Average Medicare Part B standardized allowed amount, converted to 2015 dollars using Medical CPI, across various service categories and totaled within the measurement period	90-day Post-anchor/ qualifying stay discharge	The sum of Medicare payment and beneficiary out-of-pocket amounts for Part B outpatient therapy (speech, occupation, and physical therapy), imaging and lab services, procedures, physician evaluation & management services (E&M), all other non-institutional services, and other institutional services trended to 2015. Payment in the lower/upper ends are winsorized[3].	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor/qualifying admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part B payments during the bundle and acute period.

[2] Medicare Part A acute payments are winsorized by quarter and by MS-DRG, at the 2nd and 98th percentiles. All other Medicare Part A payments are winsorized by quarter and EI type (Model 3) at the 1st and 99th percentiles.

[3] Medicare Part B payments are winsorized by quarter and EI type (Model 3 only) at the 1st and 99th percentiles.

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Payment	Medicare Part A and Part B included in the bundle definition (All Models)	Average total Medicare Part A and Part B standardized allowed amount, converted to 2015 dollars using Medical CPI, included in the definition of the bundle	Bundle period	The sum of Medicare payment and beneficiary out-of-pocket amounts for all Part A and Part B services included in the bundle definition. Payment in the lower/upper ends are winsorized[4].	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor/qualifying admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part B payments during the bundle and acute period.
Payment	Medicare Part A and Part B not included in the bundle definition (Models 2 & 3)	Average total Medicare Part A and Part B standardized allowed amount, converted to 2015 dollars using Medical CPI, not included in the definition of the bundle	Bundle period	The sum of Medicare payment and beneficiary out-of-pocket amounts for all Part A and Part B services that are not included in the bundle definition. Payment in the lower/upper ends are winsorized[5].	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor/qualifying admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part B payments during the bundle and acute period.
Payment	Medicare Part A and B for readmissions not included in bundle definition (Model 4)	Average total Medicare Part A and B standardized allowed amount, converted to 2015 dollars using Medical CPI, for readmissions excluded from bundle definition	Bundle period	The sum of Medicare payment and beneficiary out-of-pocket amounts for health care services rendered during readmissions that are excluded from the bundle definition. Payments in the lower/upper ends are winsorized[6].	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part B payments during the bundle and acute period.

[4] Total within bundle payments for Model 2 are winsorized by quarter and episode length; Model 3 payments are winsorized by quarter, EI type, and episode length; Model 4 payments are winsorized by M4 quarter, as all episodes are 30 days in length. All within bundle payments are winsorized at the 1st and 99th percentiles.

[5] Total within bundle payments for Model 2 are winsorized by quarter and episode length; Model 3 payments are winsorized by quarter, EI type, and episode length; Model 4 payments are winsorized by M4 quarter, as all episodes are 30 days in length. All within bundle payments are winsorized at the 1st and 99th percentiles.

[6] M4 payments associated with excluded readmissions are winsorized at the 1st and 99th percentiles by quarter.

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Payment	Other Medicare Part A and Part B not included in the bundle definition (Model 4)	Average total Medicare Part A and B standardized allowed amount, converted to 2015 dollars using Medical CPI, for health care services not included in the bundle definition	Bundle period	The sum of Medicare Part A and Part B payment and beneficiary out-of-pocket amounts for health care services not included in the bundle definition (does not include costs related to BPCI-excluded readmissions). Payments in the lower/upper ends are winsorized[7].	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part B payments during the bundle and acute period.
Payment	Medicare Part B, pre-bundle period (Models 2 & 4)	Average total Medicare Part B standardized allowed amount, converted to 2015 dollars using Medical CPI	30 days prior to anchor stay admission	The sum of Medicare Part B payment and beneficiary out-of-pocket amounts for all health care services. Payments in the lower/upper ends are winsorized.[8]	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part B payments during the bundle and acute period.
Payment	Medicare Part A and B, pre-bundle period (Model 3)	Average total Medicare Part A and B standardized allowed amount, converted to 2015 dollars using Medical CPI	30 days prior to PAC admission	The sum of Medicare Part A and B payment and beneficiary out-of-pocket amounts for all health care services. Payments in the lower/upper ends are winsorized.[9]	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to qualifying admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part A and B payments during the bundle and acute period.

[7] Other Medicare Part A and B payments included in the Model 4 bundle are winsorized at the 1st and 99th percentiles by quarter.
[8] Medicare Part B pre-bundle payments are winsorized at the 1st and 99th percentiles by quarter.
[9] Medicare Part A and B pre-bundle payments are winsorized by quarter and EI type at the 1st and 99th percentiles.

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Payment	Medicare Part A and B Standardized Allowed Payment Amount (All Models)	Average total Medicare Part A and B standardized allowed amount, converted to 2015 dollars using Medical CPI	All Models: Anchor/ qualifying stay + 90-day post-discharge Models 2 & 4: Post-bundle days 1-90, 1-120, 1-180	The sum of Medicare payment and beneficiary out-of-pocket amounts for all health care services. Payments in the lower/upper ends are winsorized[10].	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor/qualifying admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part A and B payments during the bundle and acute period.
Payment	Medicare Part A and Part B, inpatient hospital (Model 4)	Average total Medicare Part A and B standardized allowed amount, converted to 2015 dollars using Medical CPI, for health care services during an inpatient stay	Post-bundle days 1-30, 31-60, 1-90, 1-120, 1-180	The sum of Medicare payment and beneficiary out-of-pocket amounts for health care services rendered during an inpatient hospital stay. Payments in the lower/upper ends are winsorized[11].	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part A and B payments during the bundle and acute period.

[10] Acute payments are winsorized by quarter and by MS-DRG at the 2nd and 98th or 1st and 99th for Part A and B, respectively. All other payments in this category are winsorized by quarter, episode length, and EI type (Model 3 only) at the 1st and 99th percentiles.

[11] Post-bundle payments for Model 4 are winsorized at the 1st and 99th percentiles by quarter.

Domain	Outcome Name	Definition/ Description	Measurement period(s)	Technical Definition	Eligible Sample
Payment	Other Medicare Part A and Part B not included in the bundle definition (Model 4)	Average total Medicare Part A and B standardized allowed amount, converted to 2015 dollars using Medical CPI, for health care services not included in the bundle definition (does not include costs related to BPCI-excluded readmissions).	Post-bundle days 1-30, 31-60, 1-90, 1-120, 1-180	The sum of Medicare Part A and Part B payment and beneficiary out-of-pocket amounts for health care services not included in the bundle definition (does not include costs related to BPCI-excluded readmissions). Payments in the lower/upper ends are winsorized[12].	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part A and B payments during the bundle and acute period.
Payment	Medicare Part A and B Payment Amount (All Models) – excludes beneficiary cost sharing	Average total Medicare Part A and B payments, converted to 2015 dollars using Medical CPI	Anchor/ qualifying stay + 90-day post-discharge	The sum of Medicare payment for all health care services. Payments in the lower/upper ends are winsorized[13].	Beneficiaries who: 1) have a complete FFS enrollment history six months prior to anchor/qualifying admission; 2) have non-missing age & gender data; 3) maintain FFS A&B enrollment throughout the measurement period or until death; 4) have a measurement period that ends on or before December 31, 2015; 5) have non-missing Part A and B payments during the bundle and acute period.

[12] Post-bundle payments for Model 4 are winsorized at the 1st and 99th percentiles by quarter.
[13] Acute payments are winsorized by quarter and by MS-DRG at the 2nd and 98th or 1st and 99th for Part A and B, respectively. All other payments in this category are winsorized by quarter, episode length, and EI type (Model 3 only) at the 1st and 99th percentiles.

Exhibit K.2 includes the complete list of patient assessment-based outcomes included in this report. We reviewed salient literature and chose ten validated measures to serve our purpose; two pertaining to IRF, three for SNF, and five for HHA. For each PAC setting, we chose at least one measure for each of two domains: self-care function and mobility. These measures were selected because they were either endorsed by National Quality Forum (NQF) or validated in previous studies with demonstrated statistical performance.

In selecting measures of physical functioning, we relied on Katz's activities of daily living (ADLs) hierarchy, which categorized ADLs as bathing, dressing, toileting, transferring, continence, and eating, listed in order of increasing severity of disability. Katz and subsequent researchers generally group ADLs into "early-loss" ADLs, which include the tasks of dressing and personal hygiene that represent higher levels of physical functioning, "mid-loss" ADLs (e.g., transfer and locomotion), and "late loss" ADLs (e.g. eating) . Functional measures based upon these groups of ADL items attempt to assess the ability of PAC providers to assist patients to improve (or in many cases, regain) functioning that may have been lost or weakened by surgery, a lengthy illness or hospitalization, stroke, or other impediment to their usual ability to perform these various ADLs.[14]

To measure functional improvement for IRF patients, we used measures and accompanying risk adjustment methods described in the report "Draft Specifications for the Functional Status Quality Measures for Inpatient Rehabilitation Facilities (Version 2).[15]" To measure functional improvement at SNFs, we used the MDS-based short-stay quality measures and their risk adjustment methods described in the study "Design and Validation of Post-Acute Care Quality Measures: Final Report.[16]" To measure functional improvement at HHAs, we used the NQF measure #0174 (Improvement in Bathing), #0167 (Improvement in Ambulation/ Locomotion), #175 (Improvement in Bed Transferring) and the associated risk adjustment methods endorsed by NQF. We also used two home health quality measures reported in the CMS Home Health Quality Reporting Program: (1) improvement in upper body dressing and (2) improvement in lower body dressing. [17]

[14] Moore et al. Design and Validation of Post-Acute Care Quality Measures. Final Report submitted to CMS January 31, 2005. URL http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/NHQIQualityMeasures.html accessed 09 September 2014.

[15] RTI International. April 2014. http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/IRF-Quality-Reporting/Downloads/Draft-Specifications-for-the-Functional-Status-Quality-Measures-for-Inpatient-Rehabilitation-Facilities-Version-2.pdf

[16] Abt Associates. Jan 2005. See Appendix 1 and 2 for details. Available at http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/NHQIQualityMeasures.html

[17] The technical specification and risk adjustment method for these two HHA measures are available on CMS website at: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HomeHealthQualityInits/HHQIQualityMeasures.html

Exhibit K.2: Patient Assessment-based Outcome Definitions

PAC Setting	Measure Name	ADL Items Included
IRF	Average change in self-care score (a positive value indicates improvement)	Eating, grooming, toileting, bathing, upper body dressing, lower body dressing
	Average change in mobility score (a positive value indicates improvement)	Transfer to bed, chair, wheelchair, and toilet; walking and stairs
SNF	Patients who improve status or remain completely independent in long-form ADL function (a measure of overall function)	Bed mobility, transfer, locomotion on unit, dressing, eating, toilet use, personal hygiene
	Patients who improve status or remain completely independent in early-loss ADL function (a measure of self-care function)	Dressing, personal hygiene
	Patients who improve status or remain completely independent on mid-loss ADL function (a measure of mobility)	Transfer, locomotion on unit, walk in corridor
HHA	Patients who improve status or remain completely independent in bathing	Bathing
	Patients who improve status or remain completely independent in upper body dressing	Upper body dressing
	Patients who improve status or remain completely independent in lower body dressing	Lower body dressing
	Patients who improve status or remain completely independent in ambulation/locomotion	Ambulation/locomotion
	Patients who improve status or remain completely independent in bed transferring	Bed transferring

Appendix L: Additional Variable Definitions

Exhibit L.1: Market Characteristic Variable Definitions

Variable Name	Definition	Model(s)	Source
BPCI Market Penetration - ACH	% of 48 clinical episode inpatient admissions in a given CBSA that correspond to a BPCI ACH participating provider.	2, 3, 4	2011 Medicare claims
Herfindahl Index - ACH	Sum of the square market shares (i.e., Market Penetration) of all ACH providers (BPCI and non-BPCI). The Herfindahl Index values can range from 0 to 1, where values closer to zero signify a higher degree of competition among providers and values closer to 1 signify less competition (i.e. one or few providers dominate the market)	2, 3, 4	2011 Medicare claims
BPCI Market Penetration - SNF	% of 48 clinical episode SNF admissions in a given CBSA that correspond to a BPCI SNF participating provider.	2, 3, 4	2011 Medicare claims
Herfindahl Index - SNF	Sum of the square market shares (i.e., Market Penetration) of all SNF providers (BPCI and non-BPCI). The Herfindahl Index values can range from 0 to 1, where values closer to zero signify a higher degree of competition among providers and values closer to 1 signify less competition (i.e. one or few providers dominate the market)	2, 3, 4	2011 Medicare claims
BPCI Market Penetration - HHA	% of 48 clinical episode HHA episodes in a given CBSA that correspond to a BPCI HHA participating provider.	2, 3, 4	2011 Medicare claims
Herfindahl Index - HHA	Sum of the square market shares (i.e., Market Penetration) of all HHA providers (BPCI and non-BPCI). The Herfindahl Index values can range from 0 to 1, where values closer to zero signify a higher degree of competition among providers and values closer to 1 signify less competition (i.e. one or few providers dominate the market)	2, 3, 4	2011 Medicare claims
BPCI Market Penetration - IRF	% of 48 clinical episode IRF admissions in a given CBSA that correspond to a BPCI IRF participating provider.	2, 3, 4	2011 Medicare claims
Herfindahl Index - IRF	Sum of the square market shares (i.e., Market Penetration) of all IRF providers (BPCI and non-BPCI). The Herfindahl Index values can range from 0 to 1, where values closer to zero signify a higher degree of competition among providers and values closer to 1 signify less competition (i.e. one or few providers dominate the market)	2, 3, 4	2011 Medicare claims
Medicare Advantage Penetration	% of Medicare beneficiaries enrolled in Medicare Advantage in a given CBSA	2, 3, 4	2011 AHRF county-level data
Population	Census Population Estimates for a given CBSA	2, 3, 4	2011 AHRF county-level data
Median Household Income	Median household income in a given CBSA	2, 3, 4	2011 AHRF county-level data
% Age 65+	Population estimate ages 65+ over total population estimate for a given CBSA	2, 3, 4	2011 AHRF county-level data

Variable Name	Definition	Model(s)	Source
PCP Per 10,000	Number of primary care providers per 10,000 residents in a given CBSA	2, 3, 4	2011 AHRF county-level data
Specialist Per 10,000	Number of specialists per 10,000 residents in a given CBSA	2, 3, 4	2011 AHRF county-level data
PA/NPs Per 10,000	Number of physician assistants/nurse practitioners per 10,000 residents in a given CBSA	2, 3, 4	2011 AHRF county-level data
SNF Beds Per 10,000	Number of skilled nursing facility beds per 10,000 residents in a given CBSA	2, 3, 4	2011 AHRF county-level data

Exhibit L.2: Provider Characteristic Variable Definitions

Variable Name	Definition	Model(s)	Source
Ownership	The ownership type of a provider (e.g. for-profit, non-profit, government)	2, 3, 4	2013 POS file
Urban/Rural	CBSA Urban/Rural Indicator	2, 3, 4	2013 POS file
Region	US Region (Midwest, Northeast, South, or West); derived from the Census Bureau using state to region crosswalk	2, 3, 4	US Census Bureau
Bed Count	Number of Beds	2, 3, 4	2013 POS file
Surgical ICU Services	Indicator of whether or not surgical ICU services are provided	2, 4	2013 POS file
ICU Services	Indicator of whether or not ICU services are provided	2, 4	2013 POS file
Coronary Care Services	Indicator of whether or not coronary care services are provided	2, 4	2013 POS file
BPCI Discharges	Number of hospital discharges for any of the 48 BPCI clinical episode groups in 2013	2, 3, 4	2011 Medicare claims
Average Spend	Total average spending per episode	2, 3, 4	Hospital Compare
Occupancy Rate (%)	The efficiency of providers regarding how full they keep their beds. Calculated by taking the average daily census divided by the number of beds according to CMS IPPS data.	2, 3, 4	CMS IPPS annual files
Medicare Days	Medicare days as a percent of total inpatient days according to CMS IPPS data	2, 3, 4	CMS IPPS annual files
Resident-bed ratio	Average number of residents assigned per bed according to CMS IPPS Data	2, 3, 4	CMS IPPS annual files
IRF in CBSA	Indicator of whether or not there is an IRF in the CBSA.	3	2011 AHRF County-level data
Speech Pathology onsite	Indicator of whether or not speech pathology services are provided onsite, according to the 2013 POS file.	3	2013 POS file

Variable Name	Definition	Model(s)	Source
Mental health onsite	Indicator of whether or not mental health services are provided onsite, according to the 2013 POS file.	3	2013 POS file
High quality score	4 or 5 out of 5 possible points in quality rating	3	Nursing Home Compare
High survey score	4 or 5 out of 5 possible points in survey rating	3	Nursing Home Compare
SNF in Hospital	Indicator of whether or not a SNF is part of a hospital	3	Nursing Home Compare
Number of aides	Number of home health aides employed by a home health agency	3	2013 POS file
Number of nurses	Number of nurses employed by a home health agency	3	2013 POS file
Nurse hours	Average number of nurse hours per day per resident, Nursing Home compare	3	Nursing Home Compare
Market share squared	CBSA-level market share of provider (number of provider MS-DRGs divided by all MS-DRGS in the CBSA) squared, using BPCI DRG related cases from GDIT	3	2011 Medicare claims

Exhibit L.3: Patient Characteristic Variable Definitions

Variable Name	Definition	Model(s)	Source
Age	Percent of patients by age category; 20 to 64, 65 to 79, and 80+	2, 3, 4	2010-2015 Medicare Enrollment Database (EDB)
Gender	Percent of female patients	2, 3, 4	2010-2015 EDB
Eligible for Medicaid	Medicaid eligibility according to the Medicare Enrollment file	2, 3, 4	2010-2015 EDB
Disabled	Percent of patients who are disabled (not including ESRD), based on Medicare eligibly status from the Medicare Enrollment file	2, 3, 4	2010-2015 EDB
Average HCC Case Index	Portion of the CMS-HCC community risk score that corresponds to the HCCs present during the six months prior to the anchor admission (Models 2 & 4) or qualifying hospital stay (Model 3)	2, 3, 4	2010-2015 Medicare Claims
Utilization-Inpatient acute care hospitalization	Percent of patients with one or more inpatient acute care hospitalization during the six months prior to anchor (models 2 & 4) or qualifying (model 3) inpatient stay	2, 3, 4	2010-2015 Medicare Claims
Utilization- Home health use	Percent of patients with one or more instances of home health use during the six months prior to anchor (models 2 & 4) or qualifying (model 3) inpatient stay	2, 3, 4	2010-2015 Medicare Claims
Utilization- Inpatient rehabilitation facility stay	Percent of patients with one or more inpatient rehabilitation facility stay during the six months prior to anchor (models 2 & 4) or qualifying (model 3) inpatient stay	2, 3, 4	2010-2015 Medicare Claims
Utilization- Skilled nursing facility stay	Percent of patients with one or more skilled nursing facility stay during the six months prior to anchor (models 2 & 4) or qualifying (model 3) inpatient stay	2, 3, 4	2010-2015 Medicare Claims
Utilization- Psychiatric hospital stay	Percent of patients with one or more psychiatric hospital stay during the six months prior to anchor (models 2 & 4) or qualifying (model 3) inpatient stay	2, 3, 4	2010-2015 Medicare Claims
Utilization- Long-term care hospital stay	Percent of patients with one or more long-term care hospital stay during the six months prior to anchor (models 2 & 4) or qualifying (model 3) inpatient stay	2, 3, 4	2010-2015 Medicare Claims
No Institutional use	Percent of patients with no institutional use (inpatient, skilled nursing facility, inpatient rehabilitation, or long-term care hospital) during the six months prior to anchor (models 2 & 4) or qualifying (model 3) stay	2, 3, 4	2010-2015 Medicare Claims
Past ED Visits	Average number of emergency department (ED) visits by patients during the six months prior to anchor (models 2 & 4) or qualifying (model 3) stay	2, 3, 4	2010-2015 Medicare Claims
Past Hospitalization	Average number of hospitalizations by patients during the six months prior to anchor (models 2 & 4) or qualifying (model 3) stay	2, 3, 4	2010-2015 Medicare Claims

Exhibit L.4: Crosswalk HCC Indicators to Risk Variable Group HCC (RV HCC)

Risk variable group label	CMS-CCs	Description
rv1	**1, 3-5**	**Severe infection**
	1	HIV/AIDS
	3	Central nervous system infection
	4	Tuberculosis
	5	Opportunistic infections
rv2	**6, 111-113**	**Other infectious disease & pneumonias**
	6	Other infectious disease
	111	Aspiration and specified bacterial pneumonias
	112	Pneumococcal pneumonia, emphysema, lung abscess
	113	Viral and unspecified pneumonia, pleurisy
rv3	**7**	**Metastatic cancer/acute leukemia**
rv4	**8, 9**	**Severe cancer**
	8	Lung, upper digestive tract, and other severe cancers
	9	Other major cancers
rv6	**10, 11, 12**	**Other major cancers**
	10	Breast, prostate, colorectal and other cancers and tumors
	11	Other respiratory and heart neoplasms
	12	Other digestive and urinary neoplasms
rv9	**15-20, 119, 120**	**Diabetes mellitus**
	15	Diabetes with renal manifestation
	16	Diabetes with neurologic or peripheral circulatory manifestation
	17	Diabetes with acute complications
	18	Diabetes with ophthalmologic manifestation
	19	Diabetes with no or unspecified complications
	20	Type I diabetes mellitus
	119	Proliferative diabetic retinopathy and vitreous hemorrhage
	120	Diabetic and other vascular retinopathies
rv10	**21**	**Protein-calorie malnutrition**
rv11	**25, 26**	**End-Stage liver disease**
	25	End-Stage Liver Disease
	26	Cirrhosis of Liver
rv12	**44**	**Other hematologoical disorders**
rv14	**51-52**	**Drug and Alcohol disorders**
	51	Drug/alcohol psychosis
	52	Drug/alcohol dependence

Risk variable group label	CMS-CCs	Description
rv15	**54-56, 58, 60**	**Psychiatric comorbidity**
	54	Schizophrenia
	55	Major depressive, bipolar, and paranoid disorders
	56	Reactive and unspecified psychosis
	58	Depression
	60	Other psychiatric disorders
rv18	**67-69, 100- 102, 177, 178**	**Hemiplegia, paraplegia, paralysis, functional disability**
	67	Quadriplegia, other extensive paralysis
	68	Paraplegia
	69	Spinal Cord Disorders/Injuries
	100	Hemiplegia/hemiparesis
	101	Diplegia (upper), monoplegia, and other paralytic syndromes
	102	Speech, language, cognitive, perceptual
	177	Amputation status, lower limb/amputation
	178	Amputation status, upper limb
rv19	**74**	**Seizure disorders and convulsions**
rv20	**80**	**CHF**
rv21	**81-84, 89, 98, 99, 103- 106**	**Coronary atherosclerosis or angina, cerebrovascular disease**
	81	Acute myocardial infarction
	82	Unstable angina and other acute ischemic heart disease
	83	Angina pectoris/old myocardial infarction
	84	Coronary atherosclerosis/other chronic ischemic heart disease
	89	Hypertensive heart and renal disease or encephalopathy
	98	Cerebral atherosclerosis and aneurysm
	99	Cerebrovascular disease, unspecified
	103	Cerebrovascular disease late effects, unspecified
	104	Vascular disease with complications
	105	Vascular disease
	106	Other circulatory disease
rv24	**92, 93**	**Specified arrhythmias**
	92	Specified heart arrhythmias
	93	Other heart rhythm and conduction disorders
rv26	**108**	**Chronic obstructive pulmonary disease**
rv29	**130**	**Dialysis Status**
rv30	**148-149**	**Ulcers**
	148	Decubitus ulcer
	149	Decubitus ulcer or chronic skin ulcer
rv31	**2**	**Septicemia/shock**

Risk variable group label	CMS-CCs	Description
rv32	**22-23**	**Disorders of fluid, electrolyte, acid-base**
	22	Other significant endocrine and metabolic disorders
	23	Disorders of fluid/electrolyte/acid-base
rv33	**47**	**Iron deficiency**
rv34	**79**	**Cardio-respiratory failure or cardio-respiratory shock**
rv39	**131**	**Acute Renal failure**
rv40	**32**	**Pancreatic disease**
rv41	**38**	**Rheumatoid arthritis and inflammatory connective tissue disease**
rv42	**77**	**Respirator dependence/tracheostomy status**
rv43	**128, 174**	**Transplants**
	128	Kidney transplant status
	174	Major organ transplant status
rv44	**46**	**Coagulation defects and other specified hematological disorders**
rv45	**158**	**Hip fracture/dislocation**

Hospital-wide Readmission Measure, ***HWR Tech Report,*** July 2012

Appendix M: Waiver of three-day qualifying stay for SNF coverage: Potential impact on Medicaid spending

I. Overview

The interrelationship of Medicare and Medicaid presents potential pathways for BPCI participation to impact Medicaid spending. BPCI participation could reduce Medicare costs, which could further contribute to lower Medicaid costs because a portion of Medicaid spending is comprised of Medicare cost-sharing for full benefit Medicare-Medicaid enrollees (FBMMEs). Medicare-covered post-acute and Medicaid-covered long-term care services represent a unique opportunity for cost shifting between Medicare and Medicaid. When Medicare-Medicaid enrollees who reside in a nursing facility, paid by the Medicaid program, are discharged back to the nursing facility after a hospitalization, their nursing facility stay may be covered by Medicare for a period. This would reduce Medicaid spending and potentially increase the nursing facility's revenues because Medicare payment is often higher than Medicaid payment.[1] In addition, the nursing facility could have avoided the potentially higher costs associated with treating the Medicare-Medicaid enrollee's acute condition by sending them to the hospital.

BPCI's three-day hospital stay waiver could result in shifting costs from Medicaid to Medicare for FBMMEs. It would be easier for nursing facilities to transfer a resident to the hospital for a short inpatient hospital stay for a condition in a BPCI episode, which may then qualify the FBMME who is in a BPCI episode for Medicare coverage of their nursing facility stay. From the perspective of a hospital EI, there is a potential incentive to shorten the inpatient length of stay because it would reduce the hospital's internal costs, as long as the reduced hospital stay does not result in higher episode costs. Under the three-day stay waiver, this incentive to shorten the inpatient length of stay is in place for all patients. If, however, the patient happens to be a FBMME who is a nursing facility resident, one of the results would be a shift in costs from Medicaid to Medicare.

The magnitude of any cost shifting between Medicare and Medicaid under BPCI specifically due to the three-day hospital stay waiver for SNF coverage will depend on the:

- Volume of FBMMEs in BPCI episodes (specifically the volume of FBMMEs involved in episodes where three-day hospital stay waiver is used) who are nursing facility residents
- FBMMEs' use of SNF or nursing facility care, that could be covered by Medicare or Medicaid

[1] Seventeen percent of Medicare-Medicaid Enrollees are long-term care facility residents with Medicare (which is always the primary payer) paying for their acute care needs and Medicaid covering their long-term care. Boccuti, Cristina; Casillas, Giselle; Cubanski, Juliette; Griffin, Shannon; Jacobson, Gretchen; Neuman, Tricia; Swoope, Christina, "A Primer on Medicare: Key Facts About the Medicare Program and the People it Covers" (2015). *Kaiser Family Foundation.* Available at: http://kff.org/report-section/a-primer-on-medicare-what-is-the-role-of-medicare-for-dual-eligible-beneficiaries/

II. Research Questions and Approach

CMS is interested in assessing whether BPCI affects Medicaid spending. Medicaid data, however, are only available with a significant time lag, and they can be difficult to access. Therefore, to address this issue we used an initial exploratory approach that does not rely on Medicaid data. This approach, while not directly evaluating Medicaid costs, provides useful context on how the characteristics and experience of FBMMEs accessing nursing facility care may differ when a waiver is or is not used. These results provide information about the magnitude of potential cost shifting from Medicaid to Medicare due to the use of the three day waiver.

Using Medicare claims data, we answered the questions below for the Q4 2013 – Q3 2015 period. We utilized data on Model 2 ACH MJRLE episodes (as 97.2% of SNF waiver episodes for FBMMEs were of this type.)[2]

- What proportion of M2 ACH MJRLE episodes (with a SNF admission within 30 days) make use of the three-day hospital stay waiver?
    - Does this proportion differ between Medicare-only enrollees and MMEs?
    - Does this proportion vary depending on MME type (FBMMEs versus partial benefit enrollees who do not receive full Medicaid benefits)?
- Is there a difference between FBMMEs in M2 ACH MJRLE episodes (with a SNF admission within 30 days) for which a three-day hospital stay waiver is used compared with those for whom the waiver is not used?
    - Do patient characteristics, including prior utilization, differ between the three-day hospital stay waiver and non-waiver episodes?
    - Do hospital and SNF utilization patterns differ between the three-day hospital stay waiver and non-waiver episodes?
    - Does quality of care differ between the three-day hospital stay waiver and non-waiver episodes?

III. Results

Exhibit M.1 presents MJRLE episodes with a discharge to a SNF utilizing the three-day hospital stay waiver, stratified by Medicare-Medicaid enrollment status. During the first eight quarters of the BPCI initiative, there were 47,198 Model 2 ACH EI MJRLE episodes that were discharged to a SNF within 30 days post discharge. Approximately 2.2% (N=1,072) of these episodes used the three-day hospital stay waiver, and therefore discharged the patient to a SNF following an inpatient stay that was less than three days. Of the 1,072 episodes that used the waiver, 11% (N=123) were MME beneficiaries. Among the MME beneficiaries, 75% (N=92) of the episodes were FBMME beneficiaries. FBMMEs were more likely to not use the three-day hospital stay waiver than other beneficiaries; FBMMEs accounted for 22% (N=9,962) of MJRLE episodes that were discharged to a SNF following their inpatient stay without utilizing the waiver and only 8.6% of three-day hospital stay waiver episodes.

[2] Three-day waiver use is defined as use of the BPCI SNF waiver treatment authorization code of "62" on the SNF claim and having fewer than three inpatient hospitalization days.

Exhibit M.1: Proportion of MJRLE episodes with a discharge to SNF within 30 days of hospitalization and three-day hospital stay waiver use, stratified by Medicare-Medicaid enrollment status, Model 2 ACHs, Q4 2013 – Q3 2015

	Number of MJRLE Episodes with SNF discharge within 30 days	Three-day Hospital Waiver Used		
		Number of three-day hospital stay waiver used	% of three-day hospital stay waiver episodes (N=1,072)	% of all MJRLE episodes with SNF discharge within 30 days (N=47,198)
All MJRLE episodes with SNF discharge within 30 days	47,198	1,072	100%	2.3%
Medicare-only MJRLE episodes with SNF discharge within 30 days	35,469	949	88.5%	2.0%
Medicare-Medicaid Enrollee MJRLE episodes with SNF discharge	11,189	123	11.5%	0.3%
Full Benefit[1] MME MJRLE episodes with SNF discharge	10,054	92	8.6%	0.2%
Partial Benefit[2] MME MJRLE episodes with SNF discharge	1,675	31	2.9%	0.1%

[1] Qualified Medicare Beneficiaries with full Medicaid (QMB Plus) and Specified Low-Income Medicare Beneficiaries with full Medicaid (SLMB Plus).
[2] Qualified Medicare Beneficiaries without other Medicaid (QMB Only), Specified Low-Income Medicare Beneficiaries without other Medicaid (SLMB Only), Qualified Disabled and Working Individuals (QDWIs) Qualifying Individuals (QI).
Source: Lewin analysis of Medicare claims data for episodes initiated Q4 2013 - Q3 2015.

Exhibit M.2 compares the characteristics of FBMME M2 ACH MJRLE episodes with a discharge to a SNF who did and did not use the three-day hospital stay waiver. The descriptive analysis is based on 92 FBMMEs with waiver use compared to 9,962 FBMMEs with a SNF discharge but no waiver use. Given that the use of the three-day hospital stay waiver requires a shorter inpatient length of stay, it is not surprising that the FBMMEs that utilized the three-day hospital stay waiver were younger, less likely to have health care utilization prior to hospital admission, and had lower episode payments and a higher rate of functional improvement in the SNF than the FBMMEs who did not utilize the waiver. A smaller proportion of FBMME three-day hospital stay waiver beneficiaries had utilization during the six months prior to their index hospitalization than FBMME non-waiver episode. For example, 36% of the FBMME non-waiver episodes had an inpatient stay during the six months prior to admission compared to only 11% of FBMME three-day waiver episodes. Since the three-day hospital stay waiver FBMMEs tended to be healthier, the total Medicare Part A and Part B payments for the anchor stay plus 90 days post discharge period were also lower compared to FBMMEs who did not use the waiver ($28,871 vs. $42,999). In addition, a higher proportion of FBMMEs who used the three-day hospital stay waiver had improved functioning compared to FBMMEs who did not use the waiver.

Exhibit M.2: Characteristics of MJRLE episodes with SNF admissions involving Full Benefit Medicare-Medicaid enrollees, stratified by three-day hospital stay waiver use, Model 2 ACHs, Q4 2013 – Q3 2015

Patient Characteristics		Three-day hospital stay waiver used, FBMMEs (N = 92)	SNF discharge but no Three-day hospital stay waiver used, FBMMEs (N = 9,962)
	Patient age (avg)	70.1	76.2
	Hierarchical Condition Category risk (avg)	0.40	1.38
	Major Complications and Comorbidities (%)	3%	65%
Any utilization six months prior to index hospitalization	Inpatient acute care hospital	11%	36%
	Emergency room admission	26%	34%
	Home health	16%	23%
	Inpatient rehabilitation facility	1%	1%
	Skilled nursing facility	5%	28%
	Psychiatric hospital	0%	2%
	Long-term care hospital	0%	2%
	No institutional care	87%	58%
	No post-acute care	59%	38%
	Institutional nursing facility1	8%	51%
Utilization Characteristics	SNF length of stay (avg)	16.2	36.1
	Inpatient + SNF length of stay (avg)	19.23	43.32
Star rating in month of SNF admission	Average	4.1	3.3
	Not Rated	0%	3%
	1-star (%)	4%	9%
	2-star (%)	11%	19%
	3-star (%)	7%	17%
	4-star (%)	26%	24%
	5-star (%)	52%	27%
Medicare Standardized Allowed Payments	Anchor hospitalization through 90-day PDP	$28,871	$42,999
	Inpatient readmissions, 90-day PDP	$770	$5,054
	Skilled nursing facility, 90-day PDP	$8,690	$18,721
Quality of Care (Assessment-based)	Improved overall functioning (%)	74%	56%
	Improved self-care functioning (%)	51%	34%
	Improved mobility functioning (%)	70%	50%
Quality of Care (Claims-based)	All-cause mortality rate, 30-day PDP	0%	6%
	All-cause mortality rate, 90-day PDP	0%	14%
	Emergency department use, 30-day PDP	10%	11%
	Emergency department use, 90-day PDP	17%	23%
	Unplanned readmission rate, 30-day PDP	1%	19%
	Unplanned readmission rate, 90-day PDP	7%	33%

Source: Lewin analysis of Medicare claims data and assessment data for episodes initiated Q4 2013 - Q3 2015.
[1] Institutional Nursing Facility is defined as any days in a nursing facility regardless of payer (Medicare, Medicaid, beneficiary) based on MDS assessment data. All other measures are based on Medicare claims.

In summary, the use of the three day waiver is rare among FBMMEs with a MJRLE episode. Fewer than 100 FBMMEs had a BPCI episode for MJRLE that used the three-day hospital stay waiver during the first eight quarters of the initiative. This accounted for less than 10% of all FBMMEs with a BPCI episode for MJRLE that were discharged to a SNF within 30 days. Thus, there are not many opportunities for Medicaid spending for FBMMEs for nursing facility care to be 'shifted' to Medicare. Further, it does not appear that FBMMES who used the waiver were nursing facility residents. FBMMEs who used the waiver were healthier and had lower costs during the entire episode period than FBMMEs who were discharged to a SNF but did not use the waiver. This descriptive analysis may be important to repeat when there is more experience with episodes involving chronic conditions, such as COPD, or acute conditions, such as urinary tract infections.

Appendix N: Groups of Model 2 Clinical Episodes Based on Shared Characteristics with Implications for Cost Saving Strategies

Exhibit N.1: Groups of Clinical Episodes Based on Shared Characteristics with Implications for Cost Saving Strategies, Model 2, Q4 2013 – Q3 2015

Group	Clinical Episodes	Hypothesis
High proportion of total baseline episode payments driven by PAC (top 10 episodes)	Hip & femur procedures except major joint (52%) Medical non-infectious orthopedic (49%) Stroke (48%) Urinary tract infection (35%) Major joint replacement of the lower extremity (34%) Nutritional and metabolic disorders (34%) Sepsis (31%) Simple pneumonia and respiratory infections (31%) Renal failure (30%) Cellulitis (27%)	We might expect to see these clinical episodes exhibit the greatest reductions in PAC utilization and costs as PAC accounts for a larger proportion of costs compared to clinical episodes not within this grouping.
High proportion of total baseline episode payments driven by the anchor inpatient stay (>40%)	Cardiac valve (64%) Coronary artery bypass graft (60%) Spinal fusion (non-cervical) (59%) Percutaneous coronary intervention (52%) Revision of the hip or knee (49%) Major bowel procedure (47%) Major joint replacement of the lower extremity (43%)	We might expect to see a reduction in the inpatient length of stay as a strategy to reduce costs as this accounts for a larger proportion of costs compared to clinical episodes not within this grouping.
Chronic episodes	Cardiac arrhythmia Cardiac valve Congestive heart failure Chronic obstructive pulmonary disease Coronary artery bypass graft Medical non-infectious orthopedic Nutritional and metabolic disorders Other respiratory Renal failure Spinal fusion	We might expect to see efforts to reduce readmissions and reduce duplicate tests and procedures as these are more often concerns in chronic conditions.
Planned episodes	Cardiac valve Coronary artery bypass graft Hip and femur procedures except major joint Major bowel procedure Major joint replacement of the lower extremity Medical non-infectious orthopedic Percutaneous coronary intervention Revision of the hip or knee Spinal fusion (non-cervical)	We might expect to see an increase in costs during the pre-bundle period and selection of healthier patients as participants have more opportunities to prepare and plan for episode of care.

Note: These groupings of clinical episodes are not mutually exclusive. Any given clinical episode may show up in any combination of groupings, and some clinical episodes are not included in any group (these include acute myocardial infarction; esophagitis, gastroenteritis, and other digestive disorders; and gastrointestinal hemorrhage). Clinical episodes are listed in decreasing order for groupings based on costs during the baseline period. For the high PAC costs in the baseline group, we arbitrarily selected 10 as the number of episodes with the highest proportion of costs due to PAC in the baseline to include in this group. Likewise, the cutoff of 40% for including episodes in the high proportion of costs occurring during the anchor inpatient stay grouping was arbitrary.

Appendix O: Impact of BPCI on Allowed Payment, Quality, and Utilization Measures, by Clinical Episode, Baseline to Intervention, Model 2 ACH

The following tables display risk-adjusted difference-in-differences results for all payment, quality, and utilization measures assessed in the OY2 Annual Report. Results are presented by clinical episode. Please observe the following abbreviations, which are used throughout the appendix:

- DiD = difference-in-differences
- LCI = lower confidence interval at the 5% and 10% level
- UCI = upper confidence interval at the 5% and 10% level
- PDP = post-anchor hospitalization discharge period
- ADL = activities of daily living
- IP = inpatient hospitalizations
- PAC = post-acute care
- SNF = skilled nursing facility
- HHA = home health agency
- IRF = inpatient rehabilitation facility

Note that sample sizes reflect the number of episodes initiated during the intervention period that met inclusion criteria for the given outcome. Medicare payments are risk-adjusted and standardized to remove the effect of geographic differences in wages, extra amounts to account for teaching programs and other policy factors. Medicare payments are expressed in 2015 dollars, the result of adjusting actual dollar amounts based on changed in the medical component of the CPI-U. Results reflect Lewin analysis of Medicare claims, assessment, and enrollment data for episodes that began Q4 2011 through Q3 2012 (baseline) and Q4 2013 through Q3 2015 (intervention period) for BPCI episode initiators and the matched comparison providers.

Exhibit O.1: Urinary Tract Infection Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,332	2,341	$23,883	$23,019	$23,993	$22,994	$135*	-$1,200	$1,470	-$986	$1,256
Total amount included in the bundle definition, 90 day episodes	2,332	2,341	$22,965	$21,953	$23,075	$21,950	$113	-$1,194	$1,419	-$984	$1,209
Total amount not included the bundle, 90-day episodes	2,332	2,341	$1,017	$1,082	$1,017	$1,116	-$35	-$299	$229	-$256	$186
Allowed payment amount for Part B services, 30 days pre-bundle	2,332	2,341	$1,684	$1,571	$1,666	$1,648	-$96	-$223	$31	-$203	$11
Total allowed payment amount, 30 days post-bundle	1,362	1,382	$3,742	$3,644	$3,728	$3,569	$61	-$530	$653	-$435	$558
Total allowed payment amount, 90 days post-bundle	823	820	$10,755	$10,111	$10,625	$9,967	$14	-$1,866	$1,893	-$1,564	$1,591
Total allowed payment amount, 120 days post-bundle	396	403	$14,291	$12,917	$12,806	$12,799	-$1,367	-$4,317	$1,584	-$3,843	$1,109
Total allowed payment amount, 180 days post-bundle	355	353	$20,390	$18,255	$17,680	$17,826	-$2,281	-$6,328	$1,765	-$5,677	$1,115
Inpatient anchor stay standardized allowed amount	2,373	2,380	$5,410	$4,952	$5,398	$4,942	-$3	-$44	$39	-$38	$33
Readmissions standardized allowed amount, 90-day PDP	2,373	2,380	$3,595	$3,671	$3,690	$3,391	$375	-$149	$900	-$65	$816
SNF standardized allowed amount, 90-day PDP	2,373	2,380	$7,057	$6,509	$7,381	$7,355	-$523	-$1,387	$341	-$1,248	$202
HHA standardized allowed amount, 90-day PDP	2,373	2,380	$1,351	$1,488	$1,521	$1,511	$147	-$8	$301	$17	$276
Therapy standardized allowed amount, 90-day PDP	2,332	2,341	$230	$181	$187	$151	-$12	-$66	$43	-$57	$34
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,332	2,341	$387	$380	$390	$361	$23	-$13	$58	-$7	$52
Procedures standardized allowed amount, 90-day PDP	2,332	2,341	$280	$277	$263	$256	$3	-$43	$49	-$35	$42
Evaluation and management standardized allowed amount, 90-day PDP	2,332	2,341	$1,443	$1,460	$1,446	$1,445	$17	-$105	$139	-$85	$120
Other institutional services standardized allowed amount, 90-day PDP	2,332	2,341	$470	$630	$525	$646	$39	-$90	$168	-$69	$147

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other non-institutional services standardized allowed amount, 90-day PDP	2,332	2,341	$585	$494	$619	$558	-$30	-$96	$36	-$85	$25
Anchor inpatient length of stay	2,394	2,394	4.7	4.5	4.6	4.4	0.0	-0.2	0.1	-0.2	0.1
Number of institutional PAC days, 90-day PDP[1]	1,002	930	36.3	33.0	37.6	36.1	-1.8	-4.4	0.8	-4.0	0.4
Number of SNF days, 90-day PDP[1]	918	855	37.3	34.1	38.4	36.6	-1.4	-4.2	1.3	-3.7	0.9
Number of HHA visits, 90-day PDP[1]	992	938	19.0	19.8	19.8	20.2	0.4	-1.6	2.3	-1.3	2.0
Patients discharged to PAC	2,394	2,393	57.4%	57.9%	57.4%	57.0%	0.9	-2.9	4.6	-2.3	4.0
Patients discharged to institutional PAC (of those who received PAC)	1,423	1,355	59.9%	59.7%	56.8%	58.0%	-1.4	-6.0	3.2	-5.2	2.5
Emergency department use, 30-day PDP	2,385	2,386	11.3%	11.8%	11.5%	12.6%	-0.7	-2.7	1.4	-2.3	1.0
Emergency department use, 90-day PDP	2,364	2,372	21.9%	24.5%	23.6%	25.0%	1.2	-1.6	4.0	-1.1	3.6
Unplanned readmission rate, 30-day PDP	2,385	2,386	14.6%	12.7%	15.2%	13.8%	-0.6	-3.0	1.7	-2.6	1.3
Unplanned readmission rate, 90-day PDP	2,364	2,372	26.8%	27.3%	27.9%	27.8%	0.6	-2.7	3.9	-2.1	3.4
All-cause mortality rate, 30-day PDP	2,360	2,357	5.9%	4.1%	5.2%	4.4%	-1.0	-2.6	0.6	-2.4	0.3
All-cause mortality rate, 90-day PDP	2,339	2,343	12.5%	11.1%	10.9%	11.1%	-1.5	-3.9	0.9	-3.5	0.5
HHA ADL, improved bathing	334	358	49.3%	51.7%	48.5%	51.8%	-1.0	-10.2	8.3	-8.7	6.8
HHA ADL, improved ambulation	334	358	48.0%	51.8%	47.8%	48.6%	3.0	-4.4	10.3	-3.2	9.2
HHA ADL, improved upper-body dressing	334	358	53.7%	57.5%	52.9%	58.0%	-1.4	-9.9	7.1	-8.5	5.7
HHA ADL, improved lower-body dressing	334	358	51.9%	51.3%	53.0%	51.9%	0.5	-9.0	10.1	-7.5	8.5
HHA ADL, improved bed transferring	334	358	47.7%	51.3%	46.6%	48.3%	1.8	-6.3	10.0	-5.0	8.7
SNF ADL, improved long-form (overall) function	680	607	50.7%	51.9%	48.9%	51.8%	-1.8	-8.6	5.1	-7.5	4.0
SNF ADL, improved early-loss (self-care) function	680	607	26.9%	28.8%	27.9%	29.6%	0.1	-6.3	6.6	-5.3	5.6
SNF ADL, improved mid-loss (mobility) function	680	604	43.5%	45.0%	43.0%	47.7%	-3.3	-9.8	3.3	-8.8	2.2
IRF ADL, average change in mobility score[2]	71	60	8.1	8.3	6.8	7.2	-0.2	-1.8	1.4	-1.6	1.1
IRF ADL, average change in self-care score[2]	71	60	11.9	12.8	9.8	10.6	0.1	-2.5	2.7	-2.1	2.3

[1] Dependent on having at least one day or visit in the given setting

[2] A positive value indicates improvement

*This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.2: Stroke Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	3,743	3,729	$33,589	$31,378	$33,282	$31,212	-$142	-$1,565	$1,282	-$1,336	$1,053
Total amount included in the bundle definition, 90 day episodes	3,423	3,408	$32,601	$30,361	$32,463	$30,405	-$182	-$1,589	$1,225	-$1,363	$999
Total amount not included the bundle, 90-day episodes	3,423	3,408	$786	$779	$822	$717	$98	-$73	$270	-$45	$242
Allowed payment amount for Part B services, 30 days pre-bundle	3,745	3,729	$1,538	$1,681	$1,479	$1,733	-$112	-$298	$75	-$268	$45
Total allowed payment amount, 30 days post-bundle	2,394	2,418	$3,855	$3,599	$3,773	$3,740	-$224	-$744	$297	-$661	$213
Total allowed payment amount, 90 days post-bundle	1,850	1,850	$10,731	$10,277	$10,077	$10,228	-$606	-$2,065	$853	-$1,830	$619
Total allowed payment amount, 120 days post-bundle	1,327	1,345	$12,985	$12,645	$12,077	$12,989	-$1,251	-$3,633	$1,131	-$3,251	$748
Total allowed payment amount, 180 days post-bundle	1,246	1,255	$17,303	$16,362	$15,657	$16,742	-$2,025	-$4,811	$761	-$4,363	$313
Inpatient anchor stay standardized allowed amount	3,770	3,768	$8,011	$7,136	$8,013	$7,153	-$15	-$142	$113	-$121	$92
Readmissions standardized allowed amount, 90-day PDP	3,768	3,768	$3,160	$2,664	$3,079	$2,778	-$195	-$599	$209	-$534	$144
SNF standardized allowed amount, 90-day PDP	3,768	3,768	$8,822	$8,398	$8,014	$7,614	-$24	-$882	$834	-$744	$697
IRF standardized allowed amount, 90-day PDP	3,768	3,768	$5,763	$5,696	$6,199	$6,121	$11	-$793	$815	-$663	$686
HHA standardized allowed amount, 90-day PDP	3,768	3,768	$1,491	$1,558	$1,526	$1,554	$39	-$112	$191	-$88	$167
Therapy standardized allowed amount, 90-day PDP	3,743	3,729	$347	$278	$335	$240	$26	-$30	$83	-$21	$74
Imaging and laboratory services standardized allowed amount, 90-day PDP	3,743	3,729	$414	$402	$432	$409	$10	-$23	$44	-$18	$39
Procedures standardized allowed amount, 90-day PDP	3,743	3,729	$232	$190	$232	$209	-$18	-$52	$15	-$47	$10

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Evaluation and management standardized allowed amount, 90-day PDP	3,743	3,729	$1,683	$1,577	$1,663	$1,603	-$45	-$164	$73	-$145	$54
Other institutional services standardized allowed amount, 90-day PDP	3,743	3,729	$397	$520	$401	$528	-$4	-$111	$102	-$94	$85
Other non-institutional services standardized allowed amount, 90-day PDP	3,743	3,729	$449	$391	$425	$409	-$43	-$91	$6	-$83	-$2
Anchor inpatient length of stay	3,802	3,801	5.3	5.0	5.2	4.9	0.0	-0.3	0.2	-0.2	0.1
Number of institutional PAC days, 90-day PDP[1]	2,149	1,945	37.6	36.2	35.7	36.0	-1.7	-3.8	0.5	-3.4	0.1
Number of SNF days, 90-day PDP[1]	1,480	1,250	42.0	41.1	41.0	41.0	-0.8	-3.3	1.8	-2.9	1.3
Number of HHA visits, 90-day PDP[1]	1,466	1,428	20.3	21.4	20.7	21.0	0.8	-0.8	2.4	-0.5	2.1
Patients discharged to PAC	3,798	3,795	65.7%	64.6%	65.6%	64.5%	-0.1	-3.1	2.9	-2.6	2.4
Patients discharged to institutional PAC (of those who received PAC)	2,532	2,425	78.1%	79.4%	77.5%	77.0%	1.8	-1.2	4.9	-0.7	4.4
Emergency department use, 30-day PDP	3,780	3,774	9.5%	11.0%	8.7%	10.3%	-0.1	-2.2	2.0	-1.9	1.6
Emergency department use, 90-day PDP	3,748	3,742	19.9%	21.1%	18.8%	22.4%	-2.3	-4.8	0.1	-4.4	-0.3
Unplanned readmission rate, 30-day PDP	3,780	3,774	12.8%	11.4%	12.0%	11.3%	-0.6	-2.5	1.3	-2.2	1.0
Unplanned readmission rate, 90-day PDP	3,748	3,742	22.9%	20.4%	21.7%	19.3%	-0.1	-2.4	2.2	-2.0	1.8
All-cause mortality rate, 30-day PDP	3,764	3,750	12.0%	12.0%	11.1%	10.8%	0.3	-1.4	2.1	-1.1	1.8
All-cause mortality rate, 90-day PDP	3,732	3,718	17.2%	16.7%	16.5%	15.7%	0.4	-1.7	2.4	-1.4	2.1
HHA ADL, improved bathing	371	421	70.6%	67.9%	70.9%	73.1%	-5.0	-12.8	2.8	-11.5	1.5
HHA ADL, improved ambulation	371	421	67.9%	71.5%	65.6%	68.7%	0.5	-7.0	7.9	-5.8	6.7
HHA ADL, improved upper-body dressing	371	421	73.3%	74.3%	72.6%	75.9%	-2.2	-9.6	5.1	-8.4	3.9
HHA ADL, improved lower-body dressing	371	421	72.6%	73.5%	72.0%	77.1%	-4.1	-11.4	3.2	-10.3	2.0
HHA ADL, improved bed transferring	371	421	65.2%	63.3%	63.6%	66.7%	-4.9	-13.4	3.5	-12.1	2.2
SNF ADL, improved long-form (overall) function	827	696	56.2%	52.7%	56.6%	58.8%	-5.6	-12.0	0.7	-11.0	-0.3
SNF ADL, improved early-loss (self-care) function	829	696	33.2%	29.4%	33.0%	37.0%	-7.8	-14.9	-0.8	-13.7	-1.9
SNF ADL, improved mid-loss (mobility) function	827	695	48.2%	45.4%	49.7%	49.8%	-2.8	-9.7	4.1	-8.6	3.0
IRF ADL, average change in mobility score[2]	879	910	6.8	7.4	6.9	6.9	0.6	0.0	1.3	0.1	1.2
IRF ADL, average change in self-care score[2]	879	910	9.4	9.5	9.5	9.6	0.0	-0.7	0.8	-0.6	0.7

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement

Exhibit O.3: Chronic Obstructive Pulmonary Disease, Bronchitis, and Asthma Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	8,088	8,079	$19,699	$18,796	$19,654	$18,811	-$59	-$776	$657	-$661	$542
Total amount included in the bundle definition, 90 day episodes	7,858	7,840	$18,860	$17,895	$18,762	$17,906	-$109	-$788	$570	-$679	$461
Total amount not included the bundle, 90-day episodes	7,858	7,840	$822	$893	$942	$859	$154	$12	$297	$35	$274
Allowed payment amount for Part B services, 30 days pre-bundle	8,095	8,081	$1,365	$1,421	$1,321	$1,369	$8	-$60	$75	-$49	$65
Total allowed payment amount, 30 days post-bundle	6,206	6,234	$3,360	$3,244	$3,460	$3,329	$15	-$278	$308	-$231	$261
Total allowed payment amount, 90 days post-bundle	5,159	5,216	$10,475	$9,464	$10,316	$9,884	-$579	-$1,399	$240	-$1,267	$109
Total allowed payment amount, 120 days post-bundle	3,896	3,912	$13,091	$12,402	$12,852	$12,629	-$466	-$1,589	$657	-$1,408	$477
Total allowed payment amount, 180 days post-bundle	3,577	3,571	$18,573	$18,012	$18,300	$17,984	-$246	-$1,670	$1,178	-$1,441	$950
Inpatient anchor stay standardized allowed amount	8,239	8,245	$5,674	$5,396	$5,676	$5,394	$3	-$14	$20	-$11	$17
Readmissions standardized allowed amount, 90-day PDP	8,233	8,243	$4,229	$4,133	$4,291	$3,923	$272	-$53	$597	-$1	$544
SNF standardized allowed amount, 90-day PDP	8,233	8,243	$2,823	$2,765	$2,896	$2,805	$33	-$265	$330	-$217	$282
IRF standardized allowed amount, 90-day PDP	8,233	8,243	$446	$419	$458	$402	$29	-$107	$164	-$85	$142
HHA standardized allowed amount, 90-day PDP	8,233	8,243	$1,176	$1,202	$1,175	$1,130	$71	-$13	$154	$0	$141
Therapy standardized allowed amount, 90-day PDP	8,089	8,079	$78	$64	$91	$82	-$4	-$21	$13	-$19	$10
Imaging and laboratory services standardized allowed amount, 90-day PDP	8,089	8,079	$461	$446	$464	$463	-$15	-$38	$8	-$34	$4
Procedures standardized allowed amount, 90-day PDP	8,089	8,079	$253	$235	$265	$234	$14	-$11	$38	-$7	$34

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Evaluation and management standardized allowed amount, 90-day PDP	8,089	8,079	$1,467	$1,425	$1,447	$1,411	-$5	-$78	$68	-$67	$56
Other institutional services standardized allowed amount, 90-day PDP	8,089	8,079	$632	$764	$665	$807	-$10	-$101	$81	-$86	$66
Other non-institutional services standardized allowed amount, 90-day PDP	8,089	8,079	$487	$456	$490	$486	-$27	-$73	$19	-$66	$12
Anchor inpatient length of stay	8,285	8,286	4.6	4.4	4.7	4.5	0.0	-0.1	0.2	-0.1	0.1
Number of institutional PAC days, 90-day PDP[1]	1,970	1,492	29.7	27.2	30.0	29.1	-1.5	-3.4	0.3	-3.1	0.0
Number of SNF days, 90-day PDP[1]	1,808	1,303	30.3	27.8	31.2	30.2	-1.4	-3.4	0.5	-3.1	0.2
Number of HHA visits, 90-day PDP[1]	3,151	2,871	17.4	18.5	17.1	17.6	0.6	-0.4	1.7	-0.2	1.5
Patients discharged to PAC	8,284	8,286	39.3%	40.7%	39.1%	39.6%	0.8	-1.2	2.8	-0.9	2.5
Patients discharged to institutional PAC (of those who received PAC)	3,561	3,086	36.5%	37.1%	36.3%	35.8%	1.2	-2.1	4.5	-1.6	4.0
Emergency department use, 30-day PDP	8,182	8,195	11.3%	12.3%	11.9%	12.7%	0.2	-1.1	1.6	-0.9	1.3
Emergency department use, 90-day PDP	8,131	8,152	23.7%	25.8%	24.2%	25.2%	1.0	-0.7	2.7	-0.4	2.4
Unplanned readmission rate, 30-day PDP	8,182	8,195	16.6%	16.2%	16.7%	15.5%	0.8	-0.6	2.2	-0.4	2.0
Unplanned readmission rate, 90-day PDP	8,131	8,152	32.0%	32.1%	31.8%	30.6%	1.3	-0.7	3.2	-0.3	2.9
All-cause mortality rate, 30-day PDP	8,130	8,152	3.4%	3.0%	3.3%	2.8%	0.2	-0.5	0.8	-0.4	0.7
All-cause mortality rate, 90-day PDP	8,081	8,110	8.0%	7.0%	7.5%	6.8%	-0.3	-1.4	0.8	-1.2	0.6
HHA ADL, improved bathing	1,480	1,445	61.5%	65.8%	60.6%	61.5%	3.4	-0.9	7.8	-0.2	7.1
HHA ADL, improved ambulation	1,480	1,445	58.4%	61.3%	56.1%	57.5%	1.6	-2.5	5.6	-1.9	5.0
HHA ADL, improved upper-body dressing	1,480	1,445	67.6%	70.4%	66.1%	67.9%	1.0	-2.9	4.9	-2.3	4.2
HHA ADL, improved lower-body dressing	1,480	1,445	66.3%	70.0%	65.7%	66.4%	3.0	-1.1	7.1	-0.4	6.5
HHA ADL, improved bed transferring	1,480	1,445	56.6%	58.4%	55.2%	53.9%	3.1	-0.8	6.9	-0.2	6.3
SNF ADL, improved long-form (overall) function	1,114	762	55.8%	56.1%	58.6%	56.8%	2.1	-3.9	8.0	-2.9	7.0
SNF ADL, improved early-loss (self-care) function	1,115	762	38.7%	38.3%	42.4%	41.6%	0.4	-5.7	6.6	-4.8	5.6
SNF ADL, improved mid-loss (mobility) function	1,112	762	49.0%	50.8%	50.3%	53.5%	-1.4	-7.4	4.5	-6.5	3.6
IRF ADL, average change in mobility score[2]	89	101	8.0	7.8	7.7	8.2	-0.7	-2.1	0.8	-1.9	0.5
IRF ADL, average change in self-care score[2]	89	101	11.6	11.8	10.9	11.3	-0.2	-2.0	1.6	-1.7	1.3

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement

Exhibit O.4: Coronary Artery Bypass Graft, Emergent Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	829	843	$55,330	$55,538	$55,696	$53,500	$2,404	-$603	$5,411	-$120	$4,928
Total amount included in the bundle definition, 30 day episodes	305	305	$47,762	$48,614	$46,448	$45,972	$1,329	-$3,189	$5,846	-$2,463	$5,120
Total amount included in the bundle definition, 90 day episodes	535	543	$53,798	$54,221	$53,567	$53,305	$684	-$2,515	$3,883	-$2,001	$3,369
Total amount not included the bundle, 90 day episodes	535	543	$587	$709	$477	$570	$28	-$478	$534	-$397	$453
Allowed payment amount for Part B services, 30 days pre-bundle	840	848	$1,608	$1,839	$1,602	$1,585	$249	$9	$488	$48	$450
Total allowed payment amount, 30 days post-bundle	697	723	$1,919	$2,851	$2,505	$2,194	$1,243	$539	$1,948	$652	$1,835
Total allowed payment amount, 90 days post-bundle	572	569	$5,734	$7,740	$6,239	$6,188	$2,057	$2	$4,112	$332	$3,782
Total allowed payment amount, 120 days post-bundle	466	471	$7,810	$9,934	$7,419	$7,039	$2,503	-$301	$5,308	$149	$4,857
Total allowed payment amount, 180 days post-bundle	433	445	$10,083	$13,222	$9,843	$9,747	$3,236	-$78	$6,549	$455	$6,016
Inpatient anchor stay standardized allowed amount	845	854	$34,282	$34,365	$35,207	$33,798	$1,492	-$104	$3,088	$152	$2,832
Readmissions standardized allowed amount, 90-day PDP	834	849	$2,817	$3,353	$2,956	$2,639	$852	-$161	$1,865	$2	$1,702
SNF standardized allowed amount, 90-day PDP	834	849	$3,966	$3,458	$3,099	$2,840	-$249	-$1,235	$736	-$1,077	$578
HHA standardized allowed amount, 90-day PDP	834	849	$1,858	$1,767	$2,049	$1,982	-$24	-$237	$189	-$203	$154
Imaging and laboratory services standardized allowed amount, 90-day PDP	829	843	$485	$508	$518	$470	$71	-$4	$146	$8	$134
Procedures standardized allowed amount, 90-day PDP	829	843	$241	$256	$232	$230	$17	-$74	$107	-$59	$93
Evaluation and management standardized allowed amount, 90-day PDP	829	843	$1,194	$1,337	$1,296	$1,252	$188	-$38	$413	-$2	$377

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	829	843	$983	$1,353	$974	$1,208	$136	-$98	$371	-$60	$333
Other non-institutional services standardized allowed amount, 90-day PDP	829	843	$291	$356	$294	$229	$130	$36	$223	$51	$208
Anchor inpatient length of stay	868	867	10.8	10.7	10.6	10.2	0.3	-0.3	0.8	-0.2	0.7
Number of SNF days, 90-day PDP[1]	256	199	25.5	22.2	21.8	21.5	-3.1	-7.6	1.5	-6.9	0.7
Number of HHA visits, 90-day PDP[1]	588	607	13.6	14.6	14.4	14.2	1.1	-0.4	2.7	-0.2	2.4
Patients discharged to PAC	868	867	77.6%	77.2%	80.1%	82.2%	-2.4	-7.6	2.7	-6.7	1.8
Patients discharged to institutional PAC (of those who received PAC)	697	698	42.2%	43.4%	43.4%	45.3%	-0.6	-7.0	5.8	-6.0	4.7
Emergency department use, 30-day PDP	867	865	9.2%	13.6%	13.4%	14.4%	3.4	-1.0	7.7	-0.3	7.0
Emergency department use, 90-day PDP	833	847	19.1%	24.0%	25.2%	25.6%	4.5*	-1.1	10.0	-0.2	9.1
Unplanned readmission rate, 30-day PDP	867	865	13.8%	13.6%	15.6%	12.9%	2.6	-1.3	6.4	-0.6	5.7
Unplanned readmission rate, 90-day PDP	833	847	21.2%	20.5%	22.6%	19.2%	2.7	-1.8	7.2	-1.1	6.4
All-cause mortality rate, 30-day PDP	864	865	0.8%	1.4%	1.2%	0.8%	0.9**	-0.2	2.0	0.0	1.9
All-cause mortality rate, 90-day PDP	830	847	2.1%	2.5%	2.5%	1.8%	1.2	-0.5	2.9	-0.3	2.6
HHA ADL, improved bathing	317	302	91.1%	92.2%	92.2%	89.8%	3.5	-3.2	10.2	-2.1	9.1
HHA ADL, improved ambulation	317	302	90.4%	88.6%	90.9%	89.5%	-0.4	-6.4	5.6	-5.4	4.7
HHA ADL, improved upper-body dressing	317	302	93.9%	92.7%	92.5%	90.7%	0.7	-4.7	6.1	-3.8	5.2
HHA ADL, improved lower-body dressing	317	302	91.3%	93.3%	90.8%	92.1%	0.8	-5.2	6.7	-4.2	5.7
HHA ADL, improved bed transferring	317	302	84.6%	87.7%	85.7%	85.7%	3.1	-3.5	9.7	-2.4	8.6
SNF ADL, improved long-form (overall) function	173	140	73.2%	74.5%	71.1%	70.2%	2.2	-11.1	15.4	-9.0	13.3
SNF ADL, improved early-loss (self-care) function	173	140	56.1%	56.7%	58.4%	55.1%	3.8	-11.5	19.2	-9.0	16.7
SNF ADL, improved mid-loss (mobility) function	173	140	63.5%	68.6%	66.8%	64.6%	7.4	-7.2	21.9	-4.8	19.6
IRF ADL, average change in mobility score[2]	70	104	10.0	9.9	8.0	10.0	-2.1*	-4.3	0.1	-3.9	-0.3
IRF ADL, average change in self-care score[2]	70	104	12.3	11.6	10.1	11.6	-2.2*	-4.6	0.2	-4.2	-0.2

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement
* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.
**There was insufficient sample during the baseline period to test if the BPCI and comparison providers were on parallel trends for this outcome.

Exhibit O.5: Coronary Artery Bypass Graft, Non-emergent Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	792	792	$45,065	$42,509	$44,798	$42,369	-$127	-$2,961	$2,707	-$2,506	$2,251
Total amount included in the bundle definition, 30 day episodes	201	201	$37,855	$37,818	$37,563	$37,588	-$62	-$5,023	$4,899	-$4,225	$4,102
Total amount included in the bundle definition, 90 day episodes	593	594	$42,462	$42,118	$43,244	$41,621	$1,278	-$1,812	$4,368	-$1,315	$3,871
Total amount not included the bundle, 90 day episodes	593	594	$644	$502	$573	$620	-$189	-$596	$219	-$531	$153
Allowed payment amount for Part B services, 30 days pre-bundle	794	795	$3,403	$3,331	$3,332	$3,192	$68	-$267	$402	-$213	$348
Total allowed payment amount, 30 days post-bundle	656	643	$2,352	$2,322	$1,948	$2,478	-$561	-$1,500	$378	-$1,349	$227
Total allowed payment amount, 90 days post-bundle	516	509	$5,231	$6,270	$5,405	$6,487	-$44	-$2,647	$2,560	-$2,229	$2,141
Total allowed payment amount, 120 days post-bundle	407	409	$6,128	$8,102	$6,139	$7,443	$670	-$2,319	$3,660	-$1,839	$3,179
Total allowed payment amount, 180 days post-bundle	383	379	$8,384	$11,229	$8,852	$10,510	$1,187	-$2,099	$4,474	-$1,571	$3,945
Inpatient anchor stay standardized allowed amount	797	802	$26,306	$24,762	$26,749	$24,957	$248	-$723	$1,218	-$567	$1,062
Readmissions standardized allowed amount, 90-day PDP	795	799	$2,842	$2,320	$2,682	$2,681	-$522	-$1,514	$470	-$1,354	$311
SNF standardized allowed amount, 90-day PDP	795	799	$2,452	$2,975	$3,210	$2,605	$1,127	$212	$2,043	$359	$1,896
HHA standardized allowed amount, 90-day PDP	795	799	$1,781	$1,724	$1,892	$1,754	$80	-$151	$312	-$114	$274
Imaging and laboratory services standardized allowed amount, 90-day PDP	792	792	$494	$464	$501	$483	-$12	-$90	$66	-$78	$54
Procedures standardized allowed amount, 90-day PDP	792	792	$270	$240	$259	$247	-$18	-$103	$68	-$89	$54
Evaluation and management standardized allowed amount, 90-day PDP	792	792	$1,188	$1,170	$1,063	$1,075	-$31	-$263	$201	-$226	$163

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	792	792	$1,063	$1,282	$1,076	$1,330	-$35	-$300	$230	-$257	$188
Other non-institutional services standardized allowed amount, 90-day PDP	792	792	$225	$343	$304	$291	$131	$22	$240	$40	$223
Anchor inpatient length of stay	812	813	8.0	8.0	7.9	7.8	0.1	-0.4	0.5	-0.3	0.5
Number of SNF days, 90-day PDP[1]	212	177	21.7	24.3	22.8	19.6	5.7	1.4	10.0	2.1	9.3
Number of HHA visits, 90-day PDP[1]	546	551	12.5	13.6	13.6	13.9	0.8	-1.0	2.7	-0.7	2.4
Patients discharged to PAC	812	813	76.0%	76.9%	77.0%	78.5%	-0.6	-7.1	5.9	-6.1	4.9
Patients discharged to institutional PAC (of those who received PAC)	642	638	38.2%	39.2%	39.0%	38.9%	1.1	-5.9	8.2	-4.8	7.0
Emergency department use, 30-day PDP	812	813	11.0%	13.0%	12.6%	13.1%	1.5	-2.3	5.4	-1.7	4.7
Emergency department use, 90-day PDP	795	799	19.3%	20.5%	22.0%	23.2%	0.1	-5.2	5.4	-4.3	4.6
Unplanned readmission rate, 30-day PDP	812	813	14.6%	11.0%	11.4%	10.9%	-3.1	-7.5	1.4	-6.8	0.7
Unplanned readmission rate, 90-day PDP	795	799	20.0%	17.2%	15.5%	16.1%	-3.5	-8.5	1.6	-7.7	0.7
All-cause mortality rate, 30-day PDP	812	812	0.6%	0.9%	0.5%	0.8%	0.0**	-1.2	1.2	-1.0	1.0
All-cause mortality rate, 90-day PDP	795	798	1.5%	2.0%	1.6%	1.4%	0.7	-1.1	2.5	-0.8	2.2
HHA ADL, improved bathing	309	323	90.4%	92.7%	91.8%	91.1%	3.0	-3.4	9.3	-2.3	8.3
HHA ADL, improved ambulation	309	323	89.5%	92.0%	90.4%	90.0%	3.0	-2.9	8.9	-2.0	8.0
HHA ADL, improved upper-body dressing	309	323	92.6%	94.0%	93.2%	93.1%	1.5	-4.0	6.9	-3.1	6.1
HHA ADL, improved lower-body dressing	309	323	93.0%	92.7%	93.7%	93.1%	0.3	-4.5	5.2	-3.7	4.4
HHA ADL, improved bed transferring	309	323	88.2%	87.6%	88.3%	89.4%	-1.8	-8.6	5.1	-7.5	4.0
SNF ADL, improved long-form (overall) function	153	133	79.0%	73.4%	69.1%	72.8%	-9.3	-22.9	4.4	-20.7	2.2
SNF ADL, improved early-loss (self-care) function	153	133	58.7%	54.3%	55.1%	57.3%	-6.7	-23.0	9.7	-20.4	7.0
SNF ADL, improved mid-loss (mobility) function	153	133	78.6%	68.5%	60.2%	65.1%	-15.0	-30.6	0.6	-28.1	-1.9
IRF ADL, average change in mobility score[2]	63	62	8.7	9.1	9.1	9.7	-0.1	-2.6	2.4	-2.2	2.0
IRF ADL, average change in self-care score[2]	63	62	10.9	11.3	10.1	10.5	0.0	-2.6	2.6	-2.2	2.2

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement
**There was insufficient sample during the baseline period to test if the BPCI and comparison providers were on parallel trends for this outcome. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.6: Major Joint Replacement of the Lower Extremity, Fracture Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	5,419	5,436	$48,169	$44,933	$46,843	$45,531	-$1,924	-$2,869	-$979	-$2,717	-$1,131
Total amount included in the bundle definition, 30 day episodes	855	857	$35,254	$32,696	$34,636	$34,112	-$2,034	-$3,201	-$867	-$3,013	-$1,055
Total amount included in the bundle definition, 90 day episodes	4,511	4,519	$47,389	$44,496	$46,173	$44,992	-$1,714	-$2,685	-$742	-$2,529	-$898
Total amount not included the bundle, 30 day episodes	855	857	$211	$105	$228	$76	$46	-$92	$185	-$70	$163
Total amount not included the bundle, 90 day episodes	4,511	4,519	$612	$495	$518	$548	-$146	-$286	-$7	-$264	-$29
Allowed payment amount for Part B services, 30 days pre-bundle	5,435	5,445	$1,433	$1,439	$1,409	$1,401	$13	-$60	$87	-$48	$75
Total allowed payment amount, 30 days post-bundle	4,060	4,029	$4,055	$3,912	$3,818	$3,952	-$278	-$747	$192	-$672	$117
Total allowed payment amount, 90 days post-bundle	3,235	3,244	$10,818	$10,206	$10,156	$10,054	-$510	-$1,662	$641	-$1,477	$456
Total allowed payment amount, 120 days post-bundle	2,620	2,610	$13,129	$12,361	$11,047	$11,448	-$1,169	-$2,479	$142	-$2,269	-$68
Total allowed payment amount, 180 days post-bundle	2,456	2,459	$16,716	$16,296	$14,774	$14,837	-$483	-$2,069	$1,103	-$1,814	$848
Inpatient anchor stay standardized allowed amount	5,452	5,456	$14,143	$13,555	$14,158	$13,637	-$67	-$143	$10	-$131	-$2
Readmissions standardized allowed amount, 90-day PDP	5,436	5,447	$3,392	$2,997	$3,152	$3,013	-$255	-$620	$109	-$562	$51
SNF standardized allowed amount, 90-day PDP	5,436	5,447	$16,382	$15,385	$15,914	$15,917	-$1,000	-$1,851	-$149	-$1,714	-$286
IRF standardized allowed amount, 90-day PDP	5,436	5,447	$4,567	$3,992	$4,165	$3,988	-$398	-$1,038	$242	-$935	$140
HHA standardized allowed amount, 90-day PDP	5,436	5,447	$2,275	$2,129	$2,225	$2,065	$15	-$112	$141	-$92	$121
Therapy standardized allowed amount, 90-day PDP	5,419	5,436	$280	$253	$314	$263	$24	-$15	$63	-$9	$57

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Imaging and laboratory services standardized allowed amount, 90-day PDP	5,419	5,436	$332	$309	$325	$321	-$19	-$39	$2	-$36	-$1
Procedures standardized allowed amount, 90-day PDP	5,419	5,436	$282	$242	$263	$244	-$21	-$55	$13	-$49	$8
Evaluation and management standardized allowed amount, 90-day PDP	5,419	5,436	$1,682	$1,606	$1,565	$1,544	-$56	-$144	$33	-$130	$19
Other institutional services standardized allowed amount, 90-day PDP	5,419	5,436	$417	$452	$387	$468	-$47	-$119	$25	-$107	$14
Other non-institutional services standardized allowed amount, 90-day PDP	5,419	5,436	$554	$509	$568	$521	$2	-$43	$47	-$36	$40
Anchor inpatient length of stay	5,506	5,506	6.1	5.8	6.3	6.0	-0.1	-0.2	0.1	-0.2	0.1
Number of institutional PAC days, 90-day PDP[1]	4,876	4,867	36.4	34.2	36.0	35.5	-1.7	-3.1	-0.3	-2.8	-0.6
Number of SNF days, 90-day PDP[1]	4,045	4,027	40.0	36.9	39.4	38.8	-2.4	-3.9	-1.0	-3.7	-1.2
Number of HHA visits, 90-day PDP[1]	3,111	3,090	19.9	20.1	20.2	20.0	0.4	-0.5	1.2	-0.3	1.1
Patients discharged to PAC	5,505	5,504	94.7%	94.7%	93.9%	95.0%	-1.1	-2.4	0.1	-2.2	-0.1
Patients discharged to institutional PAC (of those who received PAC)	5,226	5,223	93.8%	93.1%	93.5%	93.5%	-0.7	-2.1	0.6	-1.8	0.4
Emergency department use, 30-day PDP	5,505	5,503	8.4%	9.5%	8.4%	8.8%	0.8*	-0.7	2.2	-0.4	2.0
Emergency department use, 90-day PDP	5,435	5,444	18.2%	19.5%	19.0%	18.8%	1.5	-0.5	3.5	-0.2	3.2
Unplanned readmission rate, 30-day PDP	5,505	5,503	13.8%	12.6%	12.8%	12.3%	-0.7	-2.4	1.0	-2.2	0.7
Unplanned readmission rate, 90-day PDP	5,435	5,444	23.4%	21.5%	22.0%	21.2%	-1.0	-3.0	0.9	-2.7	0.6
All-cause mortality rate, 30-day PDP	5,428	5,404	4.8%	5.5%	5.0%	5.1%	0.5	-0.5	1.5	-0.3	1.4
All-cause mortality rate, 90-day PDP	5,359	5,348	10.7%	11.3%	10.6%	10.8%	0.4	-1.2	2.0	-1.0	1.7
HHA ADL, improved bathing	268	276	84.2%	80.7%	83.3%	82.4%	-2.6	-10.2	5.1	-9.0	3.8
HHA ADL, improved ambulation	268	276	79.8%	73.6%	79.5%	79.4%	-6.1	-14.5	2.3	-13.2	0.9
HHA ADL, improved upper-body dressing	268	276	80.6%	83.0%	83.3%	84.8%	0.9	-6.5	8.3	-5.3	7.1
HHA ADL, improved lower-body dressing	268	276	76.6%	75.6%	74.7%	78.5%	-4.9	-13.7	3.9	-12.3	2.5
HHA ADL, improved bed transferring	268	276	71.2%	61.6%	70.8%	71.2%	-9.9	-20.2	0.4	-18.6	-1.3
SNF ADL, improved long-form (overall) function	3,087	3,020	66.4%	65.5%	65.8%	65.2%	-0.4	-3.6	2.9	-3.1	2.4

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
SNF ADL, improved early-loss (self-care) function	3,088	3,023	42.8%	41.0%	44.4%	42.8%	-0.2	-3.5	3.2	-3.0	2.6
SNF ADL, improved mid-loss (mobility) function	3,085	3,016	61.5%	61.3%	62.7%	63.2%	-0.7	-4.1	2.7	-3.5	2.2
IRF ADL, average change in mobility score[2]	1,031	1,051	9.0	9.9	9.0	9.6	0.3	-0.2	0.8	-0.2	0.8
IRF ADL, average change in self-care score[2]	1,031	1,051	11.0	11.9	11.1	11.7	0.3	-0.4	1.1	-0.3	1.0

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement
* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate.

Exhibit O.7: Major Joint Replacement of the Lower Extremity, Non-fracture Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	35,126	35,127	$27,008	$24,113	$26,600	$24,810	-$1,105	-$1,516	-$693	-$1,450	-$759
Total amount included in the bundle definition, 30 day episodes	5,959	5,941	$23,671	$20,686	$23,112	$21,663	-$1,537	-$2,195	-$879	-$2,089	-$985
Total amount included in the bundle definition, 90 day episodes	28,818	28,802	$26,740	$23,856	$26,414	$24,685	-$1,155	-$1,588	-$722	-$1,518	-$792
Total amount not included the bundle, 30 day episodes	5,959	5,941	$75	$55	$63	$48	-$6	-$51	$39	-$44	$32
Total amount not included the bundle, 90 day episodes	28,818	28,802	$293	$281	$298	$286	$0	-$37	$37	-$31	$31
Allowed payment amount for Part B services, 30 days pre-bundle	35,176	35,143	$866	$801	$867	$829	-$26	-$60	$7	-$54	$2
Total allowed payment amount, 30 days post-bundle	28,916	28,962	$1,342	$1,275	$1,350	$1,327	-$43	-$134	$47	-$119	$32
Total allowed payment amount, 90 days post-bundle	22,828	22,865	$3,788	$3,604	$3,785	$3,648	-$47	-$282	$187	-$244	$149
Total allowed payment amount, 120 days post-bundle	18,308	18,341	$4,755	$4,644	$4,920	$4,593	$217	-$92	$526	-$43	$476
Total allowed payment amount, 180 days post-bundle	17,356	17,408	$6,772	$6,851	$7,002	$6,697	$384	-$32	$801	$35	$734
Inpatient anchor stay standardized allowed amount	35,355	35,333	$12,784	$12,248	$12,782	$12,289	-$43	-$112	$25	-$101	$14
Readmissions standardized allowed amount, 90-day PDP	35,305	35,316	$1,012	$945	$931	$907	-$42	-$130	$46	-$116	$32
SNF standardized allowed amount, 90-day PDP	35,305	35,316	$4,276	$3,233	$4,263	$3,797	-$576	-$880	-$272	-$831	-$321
IRF standardized allowed amount, 90-day PDP	35,305	35,316	$1,357	$781	$1,130	$961	-$407	-$637	-$177	-$600	-$214
HHA standardized allowed amount, 90-day PDP	35,305	35,316	$2,363	$2,225	$2,396	$2,157	$100	-$50	$250	-$26	$226
Therapy standardized allowed amount, 90-day PDP	35,126	35,127	$847	$700	$846	$713	-$14	-$53	$25	-$46	$19

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Imaging and laboratory services standardized allowed amount, 90-day PDP	35,126	35,127	$305	$291	$306	$281	$10	-$1	$21	$1	$20
Procedures standardized allowed amount, 90-day PDP	35,126	35,127	$279	$263	$269	$251	$2	-$12	$16	-$10	$14
Evaluation and management standardized allowed amount, 90-day PDP	35,126	35,127	$685	$604	$643	$614	-$52	-$84	-$21	-$79	-$26
Other institutional services standardized allowed amount, 90-day PDP	35,126	35,127	$300	$340	$309	$349	$0	-$29	$29	-$24	$25
Other non-institutional services standardized allowed amount, 90-day PDP	35,126	35,127	$205	$209	$216	$210	$10	-$7	$27	-$4	$24
Anchor inpatient length of stay	35,468	35,465	4.1	3.6	4.1	3.8	-0.1	-0.2	-0.1	-0.2	-0.1
Number of institutional PAC days, 90-day PDP[1]	13,102	14,689	17.6	17.1	17.4	17.6	-0.6	-1.2	0.0	-1.1	-0.1
Number of SNF days, 90-day PDP[1]	11,171	12,927	18.8	17.8	18.3	18.3	-1.0	-1.7	-0.3	-1.6	-0.4
Number of HHA visits, 90-day PDP[1]	23,238	23,259	15.3	15.7	15.0	15.2	0.2	-0.4	0.8	-0.3	0.7
Patients discharged to PAC	35,465	35,463	84.9%	79.5%	87.3%	83.7%	-1.8	-5.4	1.8	-4.8	1.2
Patients discharged to institutional PAC (of those who received PAC)	28,211	29,355	56.6%	44.5%	55.0%	49.9%	-7.0	-10.4	-3.6	-9.8	-4.1
Emergency department use, 30-day PDP	35,461	35,455	7.3%	7.9%	7.3%	7.7%	0.2	-0.4	0.7	-0.3	0.6
Emergency department use, 90-day PDP	35,298	35,306	12.8%	13.7%	12.8%	13.5%	0.2	-0.5	0.9	-0.4	0.8
Unplanned readmission rate, 30-day PDP	35,461	35,455	4.9%	4.6%	4.8%	4.4%	0.0	-0.4	0.5	-0.3	0.4
Unplanned readmission rate, 90-day PDP	35,298	35,306	7.8%	7.4%	7.5%	7.3%	-0.2	-0.7	0.4	-0.6	0.3
All-cause mortality rate, 30-day PDP	35,431	35,449	0.2%	0.2%	0.2%	0.2%	-0.1	-0.2	0.0	-0.1	0.0
All-cause mortality rate, 90-day PDP	35,268	35,300	0.4%	0.5%	0.4%	0.4%	0.0	-0.1	0.2	-0.1	0.2
HHA ADL, improved bathing	13,428	12,795	93.6%	93.5%	93.4%	93.5%	-0.1	-1.5	1.2	-1.3	1.0
HHA ADL, improved ambulation	13,428	12,795	88.2%	86.5%	88.6%	87.7%	-0.8	-2.7	1.1	-2.4	0.8
HHA ADL, improved upper-body dressing	13,428	12,795	94.9%	94.7%	94.6%	94.5%	-0.1	-1.1	0.9	-0.9	0.7
HHA ADL, improved lower-body dressing	13,428	12,795	90.3%	90.6%	88.5%	89.4%	-0.6	-1.9	0.6	-1.7	0.4
HHA ADL, improved bed transferring	13,428	12,795	80.5%	80.6%	80.6%	81.7%	-1.0	-3.4	1.3	-3.0	1.0
SNF ADL, improved long-form (overall) function	8,620	9,675	74.6%	73.7%	74.3%	76.3%	-2.9	-5.9	0.1	-5.4	-0.4

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
SNF ADL, improved early-loss (self-care) function	8,623	9,682	59.7%	55.6%	59.0%	60.1%	-5.2	-8.5	-1.9	-8.0	-2.4
SNF ADL, improved mid-loss (mobility) function	8,615	9,677	69.2%	67.1%	69.7%	71.2%	-3.6	-6.8	-0.5	-6.3	-1.0
IRF ADL, average change in mobility score[2]	1,727	1,697	10.7	11.1	10.5	11.2	-0.3	-0.8	0.1	-0.7	0.0
IRF ADL, average change in self-care score[2]	1,727	1,697	12.0	12.4	11.8	12.8	-0.7	-1.3	0.0	-1.2	-0.1

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement

Exhibit O.8: Percutaneous Coronary Intervention Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	1,577	1,592	$26,549	$26,315	$25,471	$25,894	-$658*	-$2,018	$703	-$1,800	$484
Total amount included in the bundle definition, 90 day episodes	1,577	1,592	$26,160	$25,781	$24,962	$25,230	-$647	-$2,036	$742	-$1,813	$519
Total amount not included the bundle, 90 day episodes	1,577	1,592	$580	$675	$651	$675	$70	-$180	$320	-$140	$280
Allowed payment amount for Part B services, 30 days pre-bundle	1,577	1,592	$1,790	$2,264	$1,724	$1,892	$306	-$155	$767	-$81	$693
Total allowed payment amount, 30 days post-bundle	1,180	1,179	$2,551	$2,441	$2,280	$2,309	-$139	-$679	$401	-$592	$314
Total allowed payment amount, 90 days post-bundle	876	895	$7,533	$6,863	$6,610	$6,881	-$941	-$2,473	$592	-$2,227	$345
Total allowed payment amount, 120 days post-bundle	637	655	$9,157	$9,554	$7,257	$8,150	-$496	-$2,728	$1,736	-$2,369	$1,377
Total allowed payment amount, 180 days post-bundle	596	605	$12,625	$14,607	$10,316	$11,430	$869	-$2,435	$4,172	-$1,904	$3,642
Inpatient anchor stay standardized allowed amount	1,619	1,620	$13,773	$13,968	$13,732	$13,894	$32	-$559	$624	-$464	$529
Readmissions standardized allowed amount, 90-day PDP	1,619	1,620	$3,456	$3,778	$3,530	$3,574	$278	-$462	$1,017	-$343	$898
SNF standardized allowed amount, 90-day PDP	1,619	1,620	$1,389	$1,417	$1,173	$1,288	-$88	-$518	$343	-$449	$273
HHA standardized allowed amount, 90-day PDP	1,619	1,620	$734	$637	$660	$672	-$110	-$246	$27	-$224	$5
Therapy standardized allowed amount, 90-day PDP	1,577	1,592	$39	$44	$50	$43	$12	-$7	$31	-$4	$28
Imaging and laboratory services standardized allowed amount, 90-day PDP	1,577	1,592	$568	$490	$548	$550	-$81	-$142	-$19	-$132	-$29
Procedures standardized allowed amount, 90-day PDP	1,577	1,592	$425	$362	$423	$358	$1	-$77	$79	-$64	$66
Evaluation and management standardized allowed amount, 90-day PDP	1,577	1,592	$1,221	$1,118	$1,056	$1,127	-$173	-$318	-$29	-$295	-$52

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	1,577	1,592	$1,114	$1,369	$1,155	$1,397	$12	-$347	$371	-$289	$314
Other non-institutional services standardized allowed amount, 90-day PDP	1,577	1,592	$300	$397	$269	$330	$36	-$45	$118	-$32	$105
Anchor inpatient length of stay	1,628	1,629	4.1	4.1	4.0	4.1	-0.1	-0.3	0.1	-0.3	0.1
Number of institutional PAC days, 90-day PDP[1]	173	158	29.6	26.4	26.7	25.8	-2.3	-7.4	2.9	-6.6	2.0
Number of SNF days, 90-day PDP[1]	146	127	31.2	27.7	29.2	27.1	-1.4	-6.7	3.9	-5.8	3.0
Number of HHA visits, 90-day PDP[1]	310	304	18.5	15.6	16.9	18.0	-4.1	-6.1	-2.0	-5.8	-2.3
Patients discharged to PAC	1,628	1,629	22.1%	20.3%	19.1%	19.4%	-2.1	-5.5	1.3	-4.9	0.7
Patients discharged to institutional PAC (of those who received PAC)	312	311	36.5%	40.3%	34.0%	35.8%	2.0	-5.9	9.8	-4.6	8.5
Emergency department use, 30-day PDP	1,622	1,625	10.5%	12.9%	11.6%	15.1%	-1.1	-3.8	1.7	-3.4	1.2
Emergency department use, 90-day PDP	1,613	1,616	20.5%	22.5%	21.9%	24.5%	-0.7	-4.3	3.0	-3.7	2.4
Unplanned readmission rate, 30-day PDP	1,622	1,625	13.1%	12.3%	10.7%	10.5%	-0.6	-3.5	2.3	-3.1	1.8
Unplanned readmission rate, 90-day PDP	1,613	1,616	21.6%	21.9%	19.0%	19.1%	0.1	-3.4	3.7	-2.8	3.1
All-cause mortality rate, 30-day PDP	1,618	1,622	1.8%	2.1%	1.5%	1.4%	0.5	-0.6	1.6	-0.4	1.4
All-cause mortality rate, 90-day PDP	1,609	1,613	3.1%	3.8%	3.2%	3.2%	0.7	-0.5	1.9	-0.3	1.7
HHA ADL, improved bathing	120	151	64.1%	64.2%	72.1%	67.4%	4.8	-5.4	15.1	-3.8	13.4
HHA ADL, improved ambulation	120	151	59.5%	67.9%	57.5%	62.9%	3.1	-8.2	14.4	-6.4	12.6
HHA ADL, improved upper-body dressing	120	151	67.1%	71.8%	76.3%	73.4%	7.6	-3.4	18.7	-1.6	16.9
HHA ADL, improved lower-body dressing	120	151	65.9%	75.4%	72.6%	77.2%	4.9	-6.4	16.2	-4.6	14.4
HHA ADL, improved bed transferring	120	151	59.1%	58.2%	58.8%	55.3%	2.6	-10.0	15.1	-8.0	13.1
SNF ADL, improved long-form (overall) function	85	72	53.5%	58.5%	58.9%	67.9%	-4.0	-24.1	16.1	-20.9	12.9
SNF ADL, improved early-loss (self-care) function	85	72	30.8%	40.9%	42.4%	44.6%	8.0	-9.6	25.5	-6.8	22.7
SNF ADL, improved mid-loss (mobility) function	85	72	50.8%	51.0%	52.1%	64.5%	-12.2	-32.0	7.6	-28.9	4.4

[1] Dependent on having at least one day or visit in the given setting

*This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.9: Congestive Heart Failure Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	13,347	13,328	$25,903	$24,799	$25,417	$24,566	-$253	-$873	$367	-$773	$268
Total amount included in the bundle definition, 30 day episodes	1,439	1,431	$15,838	$15,116	$16,231	$15,160	$349	-$560	$1,258	-$414	$1,112
Total amount included in the bundle definition, 90 day episodes	11,739	11,723	$25,309	$24,190	$24,898	$24,094	-$315	-$974	$343	-$868	$237
Total amount not included the bundle, 30 day episodes	1,439	1,431	$231	$210	$283	$151	$111	-$12	$233	$8	$214
Total amount not included the bundle, 90 day episodes	11,739	11,723	$790	$757	$743	$763	-$52	-$159	$55	-$142	$37
Allowed payment amount for Part B services, 30 days pre-bundle	13,365	13,340	$1,745	$1,752	$1,678	$1,692	-$7	-$83	$70	-$71	$57
Total allowed payment amount, 30 days post-bundle	9,305	9,407	$4,639	$4,564	$4,597	$4,485	$38	-$283	$358	-$231	$307
Total allowed payment amount, 90 days post-bundle	7,614	7,659	$13,638	$12,866	$12,910	$12,559	-$421	-$1,259	$416	-$1,124	$282
Total allowed payment amount, 120 days post-bundle	6,178	6,214	$17,380	$16,657	$16,567	$15,877	-$34	-$1,230	$1,163	-$1,038	$971
Total allowed payment amount, 180 days post-bundle	5,852	5,844	$23,932	$22,978	$22,923	$22,357	-$388	-$1,927	$1,151	-$1,680	$904
Inpatient anchor stay standardized allowed amount	13,459	13,444	$6,935	$6,481	$6,948	$6,480	$13	-$21	$47	-$15	$42
Readmissions standardized allowed amount, 90-day PDP	13,441	13,433	$6,010	$5,600	$5,826	$5,464	-$49	-$387	$289	-$333	$235
SNF standardized allowed amount, 90-day PDP	13,441	13,433	$4,384	$4,467	$4,146	$4,112	$118	-$214	$450	-$161	$397
IRF standardized allowed amount, 90-day PDP	13,441	13,433	$550	$443	$559	$594	-$143	-$274	-$13	-$253	-$34
LTCH standardized allowed amount, 90-day PDP	13,441	13,433	$536	$465	$490	$499	-$80	-$260	$100	-$231	$71
HHA standardized allowed amount, 90-day PDP	13,441	13,433	$1,524	$1,523	$1,480	$1,409	$70	-$13	$154	$0	$141
Therapy standardized allowed amount, 90-day PDP	13,347	13,329	$102	$80	$101	$84	-$5	-$22	$11	-$19	$8

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Imaging and laboratory services standardized allowed amount, 90-day PDP	13,347	13,329	$459	$444	$472	$457	$0	-$19	$19	-$16	$16
Procedures standardized allowed amount, 90-day PDP	13,347	13,329	$336	$309	$348	$316	$5	-$19	$30	-$15	$26
Evaluation and management standardized allowed amount, 90-day PDP	13,347	13,329	$1,750	$1,712	$1,742	$1,711	-$7	-$74	$61	-$63	$50
Other institutional services standardized allowed amount, 90-day PDP	13,347	13,329	$744	$940	$771	$973	-$6	-$97	$85	-$82	$70
Other non-institutional services standardized allowed amount, 90-day PDP	13,347	13,329	$532	$496	$512	$498	-$22	-$56	$12	-$50	$7
Anchor inpatient length of stay	13,551	13,551	5.3	5.1	5.3	5.1	0.0	-0.1	0.1	-0.1	0.1
Number of institutional PAC days, 90-day PDP[1]	4,444	3,833	30.2	29.4	30.1	29.3	0.1	-1.3	1.5	-1.1	1.3
Number of SNF days, 90-day PDP[1]	4,125	3,414	30.8	29.9	30.9	29.9	0.1	-1.4	1.6	-1.2	1.3
Number of HHA visits, 90-day PDP[1]	6,104	5,608	18.5	19.6	18.7	19.0	0.8	0.0	1.6	0.1	1.4
Patients discharged to PAC	13,534	13,534	53.8%	54.7%	52.5%	52.9%	0.4	-1.7	2.5	-1.4	2.2
Patients discharged to institutional PAC (of those who received PAC)	7,693	6,972	41.9%	43.3%	42.1%	42.0%	1.6	-0.6	3.8	-0.3	3.4
Emergency department use, 30-day PDP	13,446	13,452	10.4%	11.3%	10.2%	11.3%	-0.2	-1.2	0.8	-1.0	0.7
Emergency department use, 90-day PDP	13,336	13,335	21.5%	22.7%	21.2%	23.0%	-0.6	-2.0	0.7	-1.7	0.5
Unplanned readmission rate, 30-day PDP	13,446	13,452	20.4%	19.5%	19.9%	19.2%	-0.3	-1.5	1.0	-1.3	0.8
Unplanned readmission rate, 90-day PDP	13,336	13,335	37.4%	37.3%	36.5%	36.6%	-0.2	-1.8	1.3	-1.5	1.1
All-cause mortality rate, 30-day PDP	13,285	13,343	8.4%	7.7%	8.5%	8.0%	-0.2	-1.0	0.7	-0.9	0.5
All-cause mortality rate, 90-day PDP	13,177	13,229	17.6%	16.6%	17.4%	16.7%	-0.4*	-1.6	0.9	-1.4	0.7
HHA ADL, improved bathing	2,753	2,687	59.9%	61.1%	58.4%	61.6%	-2.1	-5.4	1.2	-4.8	0.7
HHA ADL, improved ambulation	2,753	2,687	54.2%	56.9%	54.6%	54.9%	2.5	-0.8	5.8	-0.3	5.3
HHA ADL, improved upper-body dressing	2,753	2,687	66.1%	67.9%	63.8%	67.3%	-1.7	-5.1	1.7	-4.6	1.1
HHA ADL, improved lower-body dressing	2,753	2,687	64.5%	67.0%	62.9%	66.4%	-1.0	-4.3	2.2	-3.8	1.7
HHA ADL, improved bed transferring	2,753	2,687	51.4%	53.2%	52.6%	53.9%	0.6	-2.5	3.6	-2.0	3.1
SNF ADL, improved long-form (overall) function	2,617	2,056	53.3%	55.5%	54.9%	55.2%	1.8	-2.6	6.2	-1.9	5.5
SNF ADL, improved early-loss (self-care) function	2,619	2,060	32.3%	33.0%	35.6%	36.8%	-0.5	-4.7	3.7	-4.0	3.1

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
SNF ADL, improved mid-loss (mobility) function	2,616	2,057	46.9%	49.7%	49.3%	49.8%	2.2	-2.3	6.8	-1.6	6.1
IRF ADL, average change in mobility score[2]	217	274	7.5	7.9	7.3	7.9	-0.2	-1.5	1.0	-1.3	0.8
IRF ADL, average change in self-care score[2]	217	274	10.8	10.5	10.1	10.9	-1.2	-2.6	0.3	-2.4	0.1

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement
* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.10: Acute Myocardial Infarction Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,311	2,308	$27,850	$26,092	$28,199	$26,341	$101	-$1,633	$1,834	-$1,355	$1,556
Total amount included in the bundle definition, 90 day episodes	2,306	2,302	$27,186	$25,554	$27,568	$25,731	$205	-$1,461	$1,870	-$1,193	$1,603
Total amount not included the bundle, 90 day episodes	2,306	2,302	$757	$596	$623	$739	-$277	-$494	-$60	-$459	-$95
Allowed payment amount for Part B services, 30 days pre-bundle	2,312	2,308	$1,636	$1,839	$1,593	$1,735	$62	-$177	$300	-$138	$262
Total allowed payment amount, 30 days post-bundle	1,499	1,508	$3,171	$3,097	$3,337	$3,361	-$99	-$736	$538	-$633	$436
Total allowed payment amount, 90 days post-bundle	1,179	1,203	$8,822	$9,548	$10,147	$9,737	$1,136	-$374	$2,646	-$132	$2,403
Total allowed payment amount, 120 days post-bundle	897	897	$11,082	$12,648	$13,697	$12,021	$3,241	$880	$5,603	$1,259	$5,224
Total allowed payment amount, 180 days post-bundle	852	848	$15,732	$17,908	$18,686	$16,843	$4,018	$1,007	$7,029	$1,491	$6,545
Inpatient anchor stay standardized allowed amount	2,327	2,320	$10,201	$8,907	$9,887	$9,054	-$461	-$962	$39	-$881	-$41
Readmissions standardized allowed amount, 90-day PDP	2,327	2,320	$5,181	$4,842	$5,396	$4,952	$104	-$631	$839	-$513	$721
SNF standardized allowed amount, 90-day PDP	2,327	2,320	$4,113	$4,060	$4,673	$4,151	$469	-$243	$1,180	-$129	$1,066
HHA standardized allowed amount, 90-day PDP	2,327	2,320	$1,148	$1,086	$1,153	$1,123	-$32	-$156	$92	-$136	$72
Therapy standardized allowed amount, 90-day PDP	2,312	2,308	$72	$65	$76	$81	-$13	-$44	$19	-$39	$14
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,312	2,308	$440	$416	$443	$454	-$34	-$75	$6	-$68	$0
Procedures standardized allowed amount, 90-day PDP	2,312	2,308	$400	$359	$408	$367	$1	-$62	$64	-$52	$54
Evaluation and management standardized allowed amount, 90-day PDP	2,312	2,308	$1,481	$1,432	$1,421	$1,442	-$70	-$210	$70	-$187	$47

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	2,312	2,308	$723	$959	$850	$1,014	$71	-$109	$252	-$80	$223
Other non-institutional services standardized allowed amount, 90-day PDP	2,312	2,308	$449	$428	$506	$500	-$15	-$86	$56	-$75	$45
Anchor inpatient length of stay	2,345	2,345	5.5	5.0	5.4	5.1	-0.1	-0.3	0.1	-0.3	0.1
Number of institutional PAC days, 90-day PDP[1]	733	607	29.7	29.4	31.4	29.7	1.5	-1.9	4.8	-1.4	4.3
Number of SNF days, 90-day PDP[1]	672	548	30.2	30.1	32.3	30.3	1.8	-1.6	5.3	-1.1	4.8
Number of HHA visits, 90-day PDP[1]	829	788	18.3	18.7	18.0	18.1	0.3	-1.4	1.9	-1.1	1.7
Patients discharged to PAC	2,332	2,328	46.2%	44.3%	46.5%	43.7%	0.9	-2.4	4.3	-1.9	3.7
Patients discharged to institutional PAC (of those who received PAC)	1,101	963	53.3%	52.6%	52.8%	50.9%	1.3	-4.1	6.7	-3.2	5.8
Emergency department use, 30-day PDP	2,297	2,301	11.1%	12.6%	12.0%	14.0%	-0.4	-2.9	2.0	-2.5	1.6
Emergency department use, 90-day PDP	2,280	2,277	21.3%	23.2%	22.5%	25.9%	-1.5	-5.0	1.9	-4.4	1.4
Unplanned readmission rate, 30-day PDP	2,297	2,301	17.8%	16.1%	18.7%	17.7%	-0.7*	-3.1	1.8	-2.7	1.4
Unplanned readmission rate, 90-day PDP	2,280	2,277	29.7%	28.9%	31.1%	28.5%	1.9	-1.5	5.2	-0.9	4.6
All-cause mortality rate, 30-day PDP	2,285	2,284	10.1%	9.3%	9.4%	9.7%	-1.0	-3.3	1.3	-2.9	0.9
All-cause mortality rate, 90-day PDP	2,268	2,261	17.8%	15.4%	15.8%	15.9%	-2.5	-5.1	0.0	-4.7	-0.4
HHA ADL, improved bathing	322	366	66.5%	65.0%	65.2%	64.4%	-0.6	-10.4	9.1	-8.8	7.6
HHA ADL, improved ambulation	322	366	63.0%	62.4%	58.6%	62.6%	-4.5	-12.1	3.0	-10.9	1.8
HHA ADL, improved upper-body dressing	322	366	72.5%	72.6%	71.8%	74.9%	-3.0	-11.2	5.2	-9.9	3.9
HHA ADL, improved lower-body dressing	322	366	72.4%	72.2%	71.4%	69.7%	1.4	-6.5	9.3	-5.2	8.0
HHA ADL, improved bed transferring	322	366	58.3%	58.5%	56.9%	57.2%	-0.1	-8.5	8.2	-7.1	6.9
SNF ADL, improved long-form (overall) function	444	331	54.2%	57.5%	56.2%	58.7%	0.8	-9.4	10.9	-7.7	9.3
SNF ADL, improved early-loss (self-care) function	445	332	34.3%	37.5%	36.7%	37.6%	2.3	-6.7	11.4	-5.3	9.9
SNF ADL, improved mid-loss (mobility) function	445	331	49.6%	48.5%	52.7%	49.6%	2.0	-7.4	11.5	-5.9	10.0
IRF ADL, average change in mobility score[2]	49	44	7.3	7.8	6.9	7.4	0.0	-2.5	2.4	-2.1	2.0
IRF ADL, average change in self-care score[2]	49	44	8.6	11.2	9.6	10.8	1.4	-1.6	4.4	-1.1	4.0

[1] Dependent on having at least one day or visit in the given setting

[2] A positive value indicates improvement

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.11: Cardiac Arrhythmia Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,139	2,121	$18,930	$18,707	$18,312	$17,606	$483	-$670	$1,636	-$484	$1,451
Total amount included in the bundle definition, 90 day episodes	2,139	2,121	$18,388	$18,104	$17,757	$16,964	$509	-$598	$1,616	-$420	$1,438
Total amount not included the bundle, 90 day episodes	2,139	2,121	$852	$987	$914	$963	$87	-$133	$307	-$98	$271
Allowed payment amount for Part B services, 30 days pre-bundle	2,139	2,121	$1,558	$1,626	$1,521	$1,610	-$20	-$201	$160	-$172	$131
Total allowed payment amount, 30 days post-bundle	1,531	1,531	$2,692	$2,788	$2,778	$2,489	$386	-$109	$881	-$29	$801
Total allowed payment amount, 90 days post-bundle	1,075	1,117	$8,110	$8,290	$7,815	$7,018	$976	-$387	$2,338	-$168	$2,119
Total allowed payment amount, 120 days post-bundle	662	668	$10,745	$10,460	$10,982	$9,715	$982	-$1,088	$3,052	-$755	$2,720
Total allowed payment amount, 180 days post-bundle	599	623	$14,867	$14,746	$15,396	$13,471	$1,803	-$1,492	$5,098	-$963	$4,569
Inpatient anchor stay standardized allowed amount	2,154	2,155	$5,200	$4,798	$5,201	$4,744	$55	-$48	$157	-$31	$141
Readmissions standardized allowed amount, 90-day PDP	2,154	2,155	$3,747	$3,553	$3,789	$3,682	-$87	-$726	$553	-$623	$450
SNF standardized allowed amount, 90-day PDP	2,154	2,155	$3,188	$3,249	$2,637	$2,678	$21	-$551	$592	-$459	$500
HHA standardized allowed amount, 90-day PDP	2,154	2,155	$919	$942	$888	$840	$72	-$56	$200	-$36	$180
Therapy standardized allowed amount, 90-day PDP	2,139	2,121	$103	$63	$98	$79	-$22	-$53	$9	-$48	$4
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,139	2,121	$529	$504	$571	$560	-$14	-$68	$40	-$59	$32
Procedures standardized allowed amount, 90-day PDP	2,139	2,121	$403	$412	$408	$407	$10	-$59	$79	-$48	$68
Evaluation and management standardized allowed amount, 90-day PDP	2,139	2,121	$1,316	$1,340	$1,295	$1,265	$54	-$55	$163	-$38	$146

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	2,139	2,121	$1,084	$1,486	$1,064	$1,334	$131	-$127	$389	-$86	$347
Other non-institutional services standardized allowed amount, 90-day PDP	2,139	2,121	$373	$377	$418	$384	$38	-$28	$103	-$17	$93
Anchor inpatient length of stay	2,167	2,165	3.9	3.9	3.9	3.8	0.0	-0.1	0.2	-0.1	0.2
Number of institutional PAC days, 90-day PDP[1]	494	363	32.5	31.2	31.3	31.3	-1.3	-5.2	2.6	-4.5	2.0
Number of SNF days, 90-day PDP[1]	462	326	33.0	31.6	32.4	32.2	-1.2	-5.3	3.0	-4.7	2.3
Number of HHA visits, 90-day PDP[1]	648	587	16.9	17.5	17.0	16.9	0.6	-1.1	2.4	-0.8	2.1
Patients discharged to PAC	2,165	2,164	34.6%	35.2%	32.2%	31.6%	1.2	-2.1	4.4	-1.6	3.9
Patients discharged to institutional PAC (of those who received PAC)	793	668	43.0%	43.6%	39.3%	38.8%	1.1	-4.9	7.2	-3.9	6.2
Emergency department use, 30-day PDP	2,141	2,140	11.4%	12.1%	12.0%	11.8%	0.8	-1.7	3.4	-1.3	3.0
Emergency department use, 90-day PDP	2,128	2,130	22.0%	24.2%	23.2%	23.9%	1.5	-1.7	4.7	-1.2	4.2
Unplanned readmission rate, 30-day PDP	2,141	2,140	13.2%	12.0%	13.4%	12.1%	0.2*	-2.1	2.5	-1.8	2.1
Unplanned readmission rate, 90-day PDP	2,128	2,130	23.3%	22.7%	23.8%	23.2%	0.0*	-3.2	3.3	-2.7	2.8
All-cause mortality rate, 30-day PDP	2,134	2,136	3.2%	2.7%	3.4%	3.1%	-0.3*	-1.6	1.0	-1.3	0.8
All-cause mortality rate, 90-day PDP	2,121	2,126	7.1%	6.3%	7.5%	6.4%	0.3*	-1.4	2.0	-1.2	1.7
HHA ADL, improved bathing	292	312	65.1%	67.6%	62.9%	66.7%	-1.3	-9.7	7.2	-8.4	5.8
HHA ADL, improved ambulation	292	312	59.5%	63.6%	56.2%	60.4%	-0.2	-9.6	9.2	-8.1	7.7
HHA ADL, improved upper-body dressing	292	312	67.6%	76.3%	71.1%	68.9%	10.8	2.8	18.7	4.1	17.5
HHA ADL, improved lower-body dressing	292	312	68.0%	74.4%	68.7%	70.3%	4.9	-2.7	12.5	-1.5	11.3
HHA ADL, improved bed transferring	292	312	58.2%	62.1%	57.9%	61.2%	0.6	-7.0	8.3	-5.8	7.1
SNF ADL, improved long-form (overall) function	302	201	56.1%	56.8%	56.4%	54.9%	2.2	-10.4	14.9	-8.4	12.9
SNF ADL, improved early-loss (self-care) function	302	201	36.5%	34.9%	38.6%	34.2%	2.7	-9.0	14.4	-7.1	12.5
SNF ADL, improved mid-loss (mobility) function	302	200	48.9%	49.7%	50.9%	50.2%	1.6	-9.2	12.4	-7.5	10.7

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.12: Cardiac Valve Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,086	2,089	$67,200	$63,745	$68,708	$64,334	$919	-$1,191	$3,029	-$852	$2,690
Total amount included in the bundle definition, 30 day episodes	656	656	$58,519	$54,902	$58,535	$55,918	-$1,000	-$3,350	$1,350	-$2,973	$973
Total amount included in the bundle definition, 90 day episodes	1,446	1,445	$64,312	$61,084	$64,217	$60,310	$680	-$2,993	$4,352	-$2,402	$3,762
Total amount not included the bundle, 30 day episodes	656	656	$74	$140	$503	$306	$263	$3	$524	$45	$482
Total amount not included the bundle, 90 day episodes	1,446	1,445	$650	$618	$713	$710	-$29	-$272	$215	-$233	$176
Total allowed payment amount, 30 days pre-bundle	2,102	2,101	$2,418	$2,406	$2,474	$2,430	$32	-$186	$251	-$151	$215
Total allowed payment amount, 30 days post-bundle	1,758	1,775	$2,903	$2,686	$3,655	$2,958	$479	-$123	$1,082	-$27	$985
Total allowed payment amount, 90 days post-bundle	1,433	1,436	$8,371	$7,039	$9,137	$7,657	$148	-$1,223	$1,519	-$1,003	$1,299
Total allowed payment amount, 120 days post-bundle	1,114	1,121	$10,230	$8,771	$10,619	$9,496	-$336	-$1,853	$1,181	-$1,610	$937
Total allowed payment amount, 180 days post-bundle	1,050	1,060	$13,391	$12,382	$14,121	$12,889	$223	-$1,727	$2,173	-$1,414	$1,859
Inpatient anchor stay standardized allowed amount	2,111	2,107	$43,120	$41,857	$43,718	$42,466	-$11	-$2,113	$2,092	-$1,775	$1,754
Readmissions standardized allowed amount, 90-day PDP	2,095	2,095	$4,189	$3,592	$4,406	$3,411	$398	-$403	$1,198	-$274	$1,069
SNF standardized allowed amount, 90-day PDP	2,095	2,095	$3,970	$3,602	$4,507	$3,639	$501	-$327	$1,328	-$194	$1,195
IRF standardized allowed amount, 90-day PDP	2,095	2,095	$2,307	$1,787	$2,531	$2,383	-$371	-$1,847	$1,105	-$1,610	$868
HHA standardized allowed amount, 90-day PDP	2,095	2,095	$1,909	$1,998	$2,026	$1,953	$161	-$78	$401	-$40	$362
Therapy standardized allowed amount, 90-day PDP	2,086	2,089	$86	$45	$61	$52	-$32	-$57	-$8	-$53	-$12

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,086	2,089	$664	$635	$658	$636	-$7	-$50	$35	-$43	$28
Procedures standardized allowed amount, 90-day PDP	2,086	2,089	$343	$283	$325	$266	-$1	-$58	$57	-$49	$47
Evaluation and management standardized allowed amount, 90-day PDP	2,086	2,089	$1,595	$1,426	$1,568	$1,459	-$60	-$280	$159	-$245	$124
Other institutional services standardized allowed amount, 90-day PDP	2,086	2,089	$771	$1,031	$807	$1,047	$20	-$158	$198	-$129	$170
Other non-institutional services standardized allowed amount, 90-day PDP	2,086	2,089	$301	$312	$396	$431	-$24	-$105	$58	-$92	$44
Anchor inpatient length of stay	2,135	2,135	9.4	8.9	10.0	9.3	0.1	-0.4	0.7	-0.3	0.6
Number of institutional PAC days, 90-day PDP[1]	670	782	22.4	24.3	23.9	21.9	3.9	1.2	6.6	1.6	6.2
Number of SNF days, 90-day PDP[1]	472	592	25.1	26.2	25.8	24.3	2.6	-0.3	5.5	0.2	5.0
Number of HHA visits, 90-day PDP[1]	1,512	1,367	16.4	16.8	16.1	16.3	0.2	-1.0	1.5	-0.8	1.3
Patients discharged to PAC	2,134	2,132	73.4%	78.8%	80.4%	79.3%	6.5	0.3	12.8	1.3	11.7
Patients discharged to institutional PAC (of those who received PAC)	1,717	1,630	52.8%	39.1%	52.1%	49.4%	-10.9	-23.8	1.9	-21.7	-0.1
Emergency department use, 30-day PDP	2,133	2,130	10.6%	12.4%	10.8%	11.8%	0.7	-2.4	3.8	-1.9	3.3
Emergency department use, 90-day PDP	2,093	2,090	17.8%	20.5%	19.7%	21.5%	0.9	-3.1	4.9	-2.5	4.3
Unplanned readmission rate, 30-day PDP	2,133	2,130	17.7%	16.5%	18.0%	15.9%	0.9	-2.5	4.2	-1.9	3.7
Unplanned readmission rate, 90-day PDP	2,093	2,090	26.2%	24.7%	26.9%	23.7%	1.6*	-2.4	5.6	-1.7	4.9
All-cause mortality rate, 30-day PDP	2,126	2,129	2.1%	2.0%	2.2%	2.0%	0.1	-1.0	1.3	-0.8	1.1
All-cause mortality rate, 90-day PDP	2,087	2,089	4.6%	3.5%	5.1%	3.5%	0.5	-1.3	2.3	-1.0	2.0
HHA ADL, improved bathing	864	714	88.6%	87.6%	87.5%	89.7%	-3.3	-8.5	2.0	-7.7	1.2
HHA ADL, improved ambulation	864	714	86.9%	86.2%	87.1%	87.7%	-1.2	-5.5	3.1	-4.8	2.4
HHA ADL, improved upper-body dressing	864	714	91.0%	89.7%	89.3%	90.8%	-2.7	-6.7	1.2	-6.1	0.6
HHA ADL, improved lower-body dressing	864	714	90.9%	89.7%	88.9%	91.5%	-3.8	-8.2	0.6	-7.5	-0.1
HHA ADL, improved bed transferring	864	714	83.7%	80.6%	86.1%	83.1%	-0.1	-6.0	5.8	-5.1	4.8
SNF ADL, improved long-form (overall) function	326	419	64.8%	65.0%	71.7%	68.3%	3.5	-7.7	14.7	-5.9	12.9

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
SNF ADL, improved early-loss (self-care) function	328	419	50.7%	41.4%	57.0%	53.0%	-5.3	-19.8	9.2	-17.5	6.9
SNF ADL, improved mid-loss (mobility) function	326	419	63.1%	57.2%	65.4%	61.6%	-2.1	-14.0	9.8	-12.1	7.9
IRF ADL, average change in mobility score[2]	180	177	9.1	9.0	8.9	9.5	-0.6	-2.0	0.8	-1.8	0.6
IRF ADL, average change in self-care score[2]	180	177	10.1	10.8	11.2	12.0	0.0	-1.4	1.3	-1.2	1.1

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement
* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.13: Gastrointestinal Hemorrhage Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,248	2,255	$21,500	$20,484	$21,107	$20,458	-$367	-$1,828	$1,095	-$1,593	$860
Total amount included in the bundle definition, 90 day episodes	2,248	2,255	$20,387	$19,159	$20,112	$19,637	-$754	-$2,128	$620	-$1,907	$399
Total amount not included the bundle, 90 day episodes	2,248	2,255	$1,175	$1,376	$1,130	$1,000	$331	$37	$625	$85	$578
Allowed payment amount for Part B services, 30 days pre-bundle	2,248	2,255	$1,683	$1,723	$1,653	$1,747	-$54	-$212	$104	-$187	$78
Total allowed payment amount, 30 days post-bundle	1,678	1,687	$3,055	$2,758	$2,918	$3,104	-$484	-$1,121	$153	-$1,018	$51
Total allowed payment amount, 90 days post-bundle	1,359	1,381	$9,181	$7,462	$8,822	$8,887	-$1,784	-$3,291	-$277	-$3,049	-$519
Total allowed payment amount, 120 days post-bundle	1,060	1,069	$12,195	$9,633	$11,448	$11,518	-$2,631	-$4,749	-$514	-$4,408	-$854
Total allowed payment amount, 180 days post-bundle	971	964	$16,842	$13,346	$15,894	$16,308	-$3,909	-$6,522	-$1,297	-$6,102	-$1,717
Inpatient anchor stay standardized allowed amount	2,264	2,265	$6,841	$6,408	$6,902	$6,484	-$15	-$96	$67	-$83	$54
Readmissions standardized allowed amount, 90-day PDP	2,264	2,265	$4,157	$3,977	$3,849	$3,489	$179	-$517	$875	-$405	$763
SNF standardized allowed amount, 90-day PDP	2,264	2,265	$3,674	$3,548	$3,217	$3,469	-$379	-$1,095	$337	-$980	$222
HHA standardized allowed amount, 90-day PDP	2,264	2,265	$883	$954	$947	$927	$91	-$48	$231	-$26	$208
Therapy standardized allowed amount, 90-day PDP	2,248	2,255	$112	$136	$123	$127	$21	-$27	$69	-$19	$61
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,248	2,255	$487	$447	$497	$462	-$6	-$54	$43	-$46	$35
Procedures standardized allowed amount, 90-day PDP	2,248	2,255	$390	$364	$387	$330	$31	-$26	$89	-$17	$79
Evaluation and management standardized allowed amount, 90-day PDP	2,248	2,255	$1,348	$1,266	$1,284	$1,300	-$97	-$224	$29	-$204	$9

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	2,248	2,255	$783	$880	$811	$849	$59	-$114	$232	-$86	$204
Other non-institutional services standardized allowed amount, 90-day PDP	2,248	2,255	$470	$450	$446	$494	-$67	-$154	$21	-$140	$7
Anchor inpatient length of stay	2,274	2,273	4.9	4.6	5.0	4.8	-0.1	-0.3	0.1	-0.3	0.0
Number of institutional PAC days, 90-day PDP[1]	572	498	31.9	30.7	29.4	32.1	-3.8	-8.0	0.4	-7.3	-0.3
Number of SNF days, 90-day PDP[1]	544	456	32.0	31.1	29.9	32.1	-3.1	-7.4	1.3	-6.7	0.6
Number of HHA visits, 90-day PDP[1]	697	662	17.9	18.7	17.3	17.3	0.8	-1.0	2.6	-0.7	2.3
Patients discharged to PAC	2,272	2,270	37.7%	36.7%	36.7%	36.8%	-1.1	-4.6	2.3	-4.1	1.8
Patients discharged to institutional PAC (of those who received PAC)	892	846	53.9%	51.2%	47.8%	45.5%	-0.4	-6.2	5.3	-5.3	4.4
Emergency department use, 30-day PDP	2,246	2,253	8.4%	8.9%	8.9%	9.3%	0.1	-1.9	2.2	-1.6	1.8
Emergency department use, 90-day PDP	2,236	2,246	17.3%	19.4%	17.9%	20.0%	-0.2	-3.1	2.8	-2.6	2.3
Unplanned readmission rate, 30-day PDP	2,246	2,253	16.1%	14.1%	13.4%	13.9%	-2.5	-5.3	0.3	-4.9	-0.1
Unplanned readmission rate, 90-day PDP	2,236	2,246	27.8%	25.2%	24.7%	24.3%	-2.2	-5.7	1.4	-5.1	0.8
All-cause mortality rate, 30-day PDP	2,240	2,241	5.3%	4.3%	4.7%	3.8%	-0.1	-1.5	1.3	-1.3	1.1
All-cause mortality rate, 90-day PDP	2,230	2,234	11.2%	9.0%	9.2%	7.9%	-1.0*	-3.1	1.2	-2.8	0.8
HHA ADL, improved bathing	290	325	65.6%	62.9%	61.0%	61.9%	-3.7	-12.8	5.4	-11.3	3.9
HHA ADL, improved ambulation	290	325	63.1%	58.8%	55.7%	57.0%	-5.5	-13.9	2.9	-12.6	1.5
HHA ADL, improved upper-body dressing	290	325	69.6%	72.7%	63.2%	68.3%	-1.9	-10.4	6.5	-9.0	5.1
HHA ADL, improved lower-body dressing	290	325	67.4%	67.1%	64.7%	67.8%	-3.3	-11.3	4.6	-10.0	3.4
HHA ADL, improved bed transferring	290	325	58.2%	58.3%	53.9%	56.2%	-2.2	-11.5	7.1	-10.0	5.6
SNF ADL, improved long-form (overall) function	347	276	57.1%	55.7%	53.0%	52.8%	-1.3	-10.9	8.4	-9.4	6.8
SNF ADL, improved early-loss (self-care) function	347	276	37.3%	37.0%	30.5%	34.5%	-4.3	-13.3	4.6	-11.8	3.2
SNF ADL, improved mid-loss (mobility) function	346	276	51.9%	48.1%	45.4%	46.8%	-5.2	-14.7	4.4	-13.2	2.8

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.14: Major Bowel Procedure Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	1,062	1,060	$41,400	$38,385	$39,004	$36,605	-$617	-$3,288	$2,053	-$2,859	$1,624
Total amount included in the bundle definition, 90 day episodes	1,046	1,045	$39,802	$36,906	$37,846	$35,125	-$176	-$2,385	$2,033	-$2,030	$1,678
Total amount not included the bundle, 90 day episodes	1,046	1,045	$933	$930	$870	$904	-$38	-$440	$365	-$376	$300
Allowed payment amount for Part B services, 30 days pre-bundle	1,062	1,061	$1,948	$1,885	$1,743	$1,858	-$178	-$412	$56	-$374	$19
Total allowed payment amount, 30 days post-bundle	827	837	$3,604	$3,236	$3,452	$3,014	$70	-$654	$795	-$538	$679
Total allowed payment amount, 90 days post-bundle	699	700	$9,171	$8,610	$10,120	$8,664	$895	-$1,621	$3,412	-$1,217	$3,007
Total allowed payment amount, 120 days post-bundle	601	601	$11,305	$11,054	$12,038	$10,136	$1,652	-$959	$4,263	-$539	$3,843
Total allowed payment amount, 180 days post-bundle	539	538	$15,679	$14,644	$16,117	$13,686	$1,397	-$1,609	$4,403	-$1,126	$3,920
Inpatient anchor stay standardized allowed amount	1,068	1,069	$19,424	$17,737	$19,446	$18,108	-$349	-$1,022	$323	-$914	$215
Readmissions standardized allowed amount, 90-day PDP	1,068	1,068	$3,708	$3,947	$3,515	$3,565	$189	-$800	$1,178	-$641	$1,019
SNF standardized allowed amount, 90-day PDP	1,068	1,068	$5,137	$4,513	$4,021	$3,891	-$494	-$1,660	$673	-$1,473	$485
HHA standardized allowed amount, 90-day PDP	1,068	1,068	$1,432	$1,508	$1,514	$1,497	$94	-$136	$323	-$99	$286
Imaging and laboratory services standardized allowed amount, 90-day PDP	1,062	1,060	$541	$525	$553	$497	$40	-$37	$117	-$25	$105
Procedures standardized allowed amount, 90-day PDP	1,062	1,060	$497	$497	$456	$418	$38	-$61	$136	-$45	$120
Evaluation and management standardized allowed amount, 90-day PDP	1,062	1,060	$1,457	$1,481	$1,222	$1,234	$13	-$228	$254	-$190	$216
Other institutional services standardized allowed amount, 90-day PDP	1,062	1,060	$1,170	$899	$1,090	$917	-$98	-$388	$192	-$341	$145

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other non-institutional services standardized allowed amount, 90-day PDP	1,062	1,060	$684	$614	$728	$615	$43	-$134	$220	-$105	$191
Anchor inpatient length of stay	1,086	1,086	9.3	8.8	9.5	9.0	0.1	-0.5	0.7	-0.4	0.6
Number of institutional PAC days, 90-day PDP[1]	400	324	32.6	28.7	31.3	28.5	-1.2	-6.3	4.0	-5.5	3.2
Number of SNF days, 90-day PDP1	349	272	32.8	28.6	30.6	28.5	-2.1	-7.2	3.0	-6.4	2.2
Number of HHA visits, 90-day PDP[1]	528	525	20.3	20.0	21.0	19.9	0.8	-1.8	3.3	-1.4	2.9
Patients discharged to PAC	1,084	1,086	57.4%	59.6%	55.3%	59.8%	-2.2	-7.4	2.9	-6.6	2.1
Patients discharged to institutional PAC (of those who received PAC)	668	638	56.9%	56.1%	47.3%	48.2%	-1.6	-9.2	5.9	-8.0	4.7
Emergency department use, 30-day PDP	1,081	1,086	9.9%	8.6%	11.3%	10.2%	-0.2	-3.7	3.3	-3.1	2.7
Emergency department use, 90-day PDP	1,064	1,068	16.4%	17.0%	18.4%	18.1%	0.9	-3.4	5.3	-2.7	4.6
Unplanned readmission rate, 30-day PDP	1,081	1,086	16.0%	15.7%	14.2%	15.1%	-1.2	-6.5	4.2	-5.7	3.3
Unplanned readmission rate, 90-day PDP	1,064	1,068	24.7%	24.9%	23.5%	24.3%	-0.7	-6.0	4.7	-5.2	3.8
All-cause mortality rate, 30-day PDP	1,080	1,083	3.4%	3.5%	3.2%	2.3%	0.9	-0.7	2.5	-0.4	2.3
All-cause mortality rate, 90-day PDP	1,063	1,065	6.6%	6.9%	6.0%	6.0%	0.3	-2.6	3.1	-2.1	2.7
HHA ADL, improved bathing	232	265	88.8%	86.7%	81.0%	82.4%	-3.4	-11.1	4.2	-9.8	3.0
HHA ADL, improved ambulation	232	265	83.0%	82.9%	79.1%	77.8%	1.2	-8.9	11.3	-7.3	9.7
HHA ADL, improved upper-body dressing	232	265	84.3%	89.6%	84.7%	87.1%	2.9	-6.2	12.0	-4.8	10.6
HHA ADL, improved lower-body dressing	232	265	88.1%	87.2%	83.3%	86.4%	-4.0	-12.0	4.1	-10.7	2.8
HHA ADL, improved bed transferring	232	265	79.2%	76.3%	78.3%	78.0%	-2.5	-10.9	5.9	-9.5	4.6
SNF ADL, improved long-form (overall) function	249	180	57.3%	58.4%	71.1%	63.8%	8.4	-7.4	24.2	-4.8	21.7
SNF ADL, improved early-loss (self-care) function	249	180	41.6%	41.8%	47.9%	42.5%	5.6	-9.4	20.6	-7.0	18.2
SNF ADL, improved mid-loss (mobility) function	249	180	53.3%	53.0%	61.9%	57.7%	3.9	-13.4	21.2	-10.6	18.5
IRF ADL, average change in mobility score[2]	40	38	7.9	9.3	8.5	8.2	1.8	-1.4	4.9	-0.9	4.4
IRF ADL, average change in self-care score[2]	40	38	9.2	10.1	11.6	9.8	2.6	-2.2	7.5	-1.5	6.7

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement

Exhibit O.15: Medical Non-Infectious Orthopedic, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,533	2,502	$30,122	$28,976	$28,816	$28,703	-$1,032	-$2,533	$468	-$2,292	$227
Total amount included in the bundle definition, 90 day episodes	2,533	2,502	$28,935	$27,830	$27,763	$27,482	-$824	-$2,318	$671	-$2,078	$431
Total amount not included the bundle, 90 day episodes	2,533	2,502	$1,130	$1,221	$1,070	$1,125	$35	-$225	$295	-$183	$253
Allowed payment amount for Part B services, 30 days pre-bundle	2,533	2,502	$1,631	$1,644	$1,578	$1,710	-$119	-$270	$32	-$246	$7
Total allowed payment amount, 30 days post-bundle	1,708	1,721	$3,644	$3,482	$3,609	$3,653	-$206	-$778	$366	-$686	$274
Total allowed payment amount, 90 days post-bundle	1,218	1,221	$10,637	$9,439	$10,163	$10,105	-$1,140	-$2,583	$302	-$2,351	$70
Total allowed payment amount, 120 days post-bundle	796	778	$12,712	$12,860	$12,045	$13,159	-$966	-$3,419	$1,487	-$3,025	$1,093
Total allowed payment amount, 180 days post-bundle	719	697	$17,586	$18,343	$16,810	$17,898	-$331	-$3,709	$3,046	-$3,166	$2,504
Inpatient anchor stay standardized allowed amount	2,575	2,573	$5,497	$5,324	$5,467	$5,239	$55	-$65	$175	-$46	$156
Readmissions standardized allowed amount, 90-day PDP	2,575	2,573	$3,733	$3,600	$3,524	$3,482	-$90	-$600	$420	-$518	$338
SNF standardized allowed amount, 90-day PDP	2,575	2,573	$10,746	$10,266	$10,797	$10,934	-$616	-$1,748	$515	-$1,566	$333
IRF standardized allowed amount, 90-day PDP	2,575	2,573	$2,333	$2,390	$1,571	$1,672	-$42	-$625	$540	-$531	$446
HHA standardized allowed amount, 90-day PDP	2,575	2,573	$1,792	$1,863	$1,786	$1,749	$107	-$48	$261	-$23	$236
Therapy standardized allowed amount, 90-day PDP	2,533	2,502	$222	$190	$235	$198	$5	-$47	$57	-$39	$48
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,533	2,502	$431	$405	$434	$392	$16	-$26	$58	-$19	$51
Procedures standardized allowed amount, 90-day PDP	2,533	2,502	$409	$366	$397	$368	-$14	-$68	$40	-$59	$31
Evaluation and management standardized allowed amount, 90-day PDP	2,533	2,502	$1,719	$1,661	$1,598	$1,583	-$43	-$177	$91	-$156	$70

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	2,533	2,502	$591	$711	$600	$707	$13	-$119	$145	-$98	$124
Other non-institutional services standardized allowed amount, 90-day PDP	2,533	2,502	$510	$486	$524	$470	$29	-$39	$98	-$28	$87
Anchor inpatient length of stay	2,591	2,591	4.6	4.4	4.7	4.4	0.0	-0.2	0.2	-0.1	0.2
Number of institutional PAC days, 90-day PDP[1]	1,568	1,468	37.6	35.0	37.4	37.2	-2.5	-4.9	0.0	-4.5	-0.4
Number of SNF days, 90-day PDP[1]	1,392	1,298	39.4	36.4	38.9	38.4	-2.4	-5.3	0.5	-4.8	0.0
Number of HHA visits, 90-day PDP[1]	1,350	1,253	19.2	19.7	18.7	19.0	0.3	-1.0	1.6	-0.8	1.4
Patients discharged to PAC	2,589	2,589	70.4%	71.3%	69.2%	71.7%	-1.7	-4.8	1.4	-4.3	0.9
Patients discharged to institutional PAC (of those who received PAC)	1,874	1,822	74.7%	76.2%	74.5%	74.4%	1.6	-1.7	5.0	-1.2	4.4
Emergency department use, 30-day PDP	2,566	2,569	9.4%	10.2%	9.8%	11.1%	-0.4	-2.5	1.7	-2.2	1.4
Emergency department use, 90-day PDP	2,550	2,551	19.8%	22.1%	20.3%	21.4%	1.2	-1.7	4.2	-1.2	3.7
Unplanned readmission rate, 30-day PDP	2,566	2,569	13.2%	12.8%	12.1%	11.0%	0.7	-1.5	2.8	-1.2	2.5
Unplanned readmission rate, 90-day PDP	2,550	2,551	24.4%	23.4%	23.6%	22.4%	0.2	-2.2	2.7	-1.9	2.3
All-cause mortality rate, 30-day PDP	2,541	2,559	3.1%	3.6%	2.9%	2.8%	0.6	-0.6	1.7	-0.4	1.5
All-cause mortality rate, 90-day PDP	2,525	2,541	6.9%	7.6%	6.5%	6.9%	0.3	-1.5	2.1	-1.2	1.8
HHA ADL, improved bathing	308	332	67.8%	69.6%	68.2%	65.8%	4.2	-4.7	13.1	-3.3	11.7
HHA ADL, improved ambulation	308	332	62.8%	61.2%	63.1%	60.6%	0.8	-8.0	9.7	-6.6	8.2
HHA ADL, improved upper-body dressing	308	332	72.2%	70.9%	72.1%	71.3%	-0.6	-9.5	8.3	-8.1	6.9
HHA ADL, improved lower-body dressing	308	332	71.3%	71.5%	70.3%	71.6%	-1.1	-10.7	8.5	-9.2	6.9
HHA ADL, improved bed transferring	308	332	63.3%	58.2%	63.8%	63.1%	-4.3	-14.4	5.7	-12.8	4.1
SNF ADL, improved long-form (overall) function	1,045	966	61.7%	62.0%	64.7%	66.5%	-1.6	-7.0	3.8	-6.1	2.9
SNF ADL, improved early-loss (self-care) function	1,045	966	42.6%	39.2%	44.1%	44.5%	-3.8	-8.9	1.4	-8.1	0.5
SNF ADL, improved mid-loss (mobility) function	1,043	966	57.7%	58.6%	59.6%	59.1%	1.5	-3.7	6.6	-2.9	5.8
IRF ADL, average change in mobility score[2]	210	215	8.7	8.8	7.5	8.4	-0.7	-2.1	0.7	-1.9	0.4
IRF ADL, average change in self-care score[2]	210	215	12.0	12.1	10.2	11.1	-0.7	-2.5	1.0	-2.2	0.7

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement

Exhibit O.16: Revision of the Hip or Knee, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	594	594	$38,705	$39,612	$40,434	$40,859	$482	-$2,074	$3,037	-$1,663	$2,626
Total amount included in the bundle definition, 90 day episodes	594	594	$38,305	$38,893	$39,871	$40,141	$318	-$1,996	$2,632	-$1,624	$2,260
Total amount not included the bundle, 90 day episodes	594	594	$344	$299	$381	$316	$20	-$258	$298	-$214	$253
Allowed payment amount for Part B services, 30 days pre-bundle	594	594	$1,157	$1,235	$1,263	$1,264	$77	-$159	$313	-$121	$275
Total allowed payment amount, 30 days post-bundle	512	530	$2,763	$2,495	$2,500	$2,883	-$651	-$1,457	$155	-$1,327	$25
Total allowed payment amount, 90 days post-bundle	465	473	$6,854	$6,517	$6,394	$7,812	-$1,755	-$4,032	$522	-$3,666	$156
Total allowed payment amount, 120 days post-bundle	415	421	$8,647	$8,572	$8,363	$10,515	-$2,228	-$5,166	$710	-$4,693	$238
Total allowed payment amount, 180 days post-bundle	400	401	$11,850	$11,558	$12,194	$14,728	-$2,827	-$7,102	$1,448	-$6,415	$761
Inpatient anchor stay standardized allowed amount	596	595	$18,981	$19,529	$18,943	$19,719	-$228	-$771	$315	-$684	$228
Readmissions standardized allowed amount, 90-day PDP	596	595	$2,476	$2,835	$2,987	$3,068	$278	-$881	$1,436	-$694	$1,250
SNF standardized allowed amount, 90-day PDP	596	595	$7,020	$6,748	$6,845	$7,027	-$454	-$1,934	$1,027	-$1,696	$789
HHA standardized allowed amount, 90-day PDP	596	595	$2,342	$2,177	$2,656	$2,377	$115	-$318	$548	-$248	$478
Therapy standardized allowed amount, 90-day PDP	594	594	$707	$589	$570	$430	$21	-$136	$178	-$111	$153
Imaging and laboratory services standardized allowed amount, 90-day PDP	594	594	$413	$375	$371	$365	-$32	-$109	$45	-$97	$32
Procedures standardized allowed amount, 90-day PDP	594	594	$433	$391	$446	$437	-$33	-$170	$104	-$148	$82
Evaluation and management standardized allowed amount, 90-day PDP	594	594	$958	$1,059	$1,122	$1,119	$104	-$79	$286	-$49	$257

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	594	594	$391	$541	$565	$595	$120	-$157	$396	-$113	$352
Other non-institutional services standardized allowed amount, 90-day PDP	594	594	$417	$300	$361	$414	-$171	-$288	-$54	-$269	-$72
Anchor inpatient length of stay	597	597	4.5	4.3	4.9	4.6	0.2	-0.1	0.4	0.0	0.3
Number of institutional PAC days, 90-day PDP[1]	298	301	25.9	29.4	26.0	29.1	0.5	-4.0	4.9	-3.3	4.2
Number of SNF days, 90-day PDP[1]	252	269	27.4	31.2	27.9	29.5	2.1	-2.5	6.6	-1.8	5.9
Number of HHA visits, 90-day PDP[1]	398	404	16.8	17.6	17.7	17.9	0.6	-1.7	3.0	-1.4	2.6
Patients discharged to PAC	597	597	80.6%	80.8%	88.7%	85.2%	3.7	-3.2	10.6	-2.1	9.5
Patients discharged to institutional PAC (of those who received PAC)	493	515	65.5%	57.8%	61.4%	56.3%	-2.6	-10.6	5.4	-9.3	4.2
Emergency department use, 30-day PDP	597	597	10.0%	10.9%	11.6%	10.4%	2.1	-4.0	8.3	-3.0	7.3
Emergency department use, 90-day PDP	596	595	17.7%	19.1%	21.0%	19.2%	3.1	-3.4	9.7	-2.4	8.6
Unplanned readmission rate, 30-day PDP	597	597	9.9%	10.6%	10.2%	8.2%	2.7	-1.4	6.9	-0.7	6.2
Unplanned readmission rate, 90-day PDP	596	595	17.2%	17.1%	18.3%	18.2%	0.1	-4.8	5.0	-4.0	4.2
All-cause mortality rate, 30-day PDP	596	597	0.6%	0.7%	0.7%	0.4%	0.3	-1.0	1.6	-0.8	1.4
All-cause mortality rate, 90-day PDP	595	595	1.2%	1.8%	1.2%	1.2%	0.7	-0.9	2.2	-0.6	1.9
HHA ADL, improved bathing	178	189	91.0%	93.2%	88.3%	94.3%	-3.8	-11.1	3.5	-9.9	2.3
HHA ADL, improved ambulation	178	189	86.8%	74.8%	80.5%	84.4%	-15.8	-25.7	-6.0	-24.1	-7.6
HHA ADL, improved upper-body dressing	178	189	93.0%	88.9%	92.4%	92.3%	-4.1	-11.7	3.5	-10.4	2.3
HHA ADL, improved lower-body dressing	178	189	88.5%	82.5%	87.3%	87.2%	-5.9	-15.1	3.3	-13.6	1.8
HHA ADL, improved bed transferring	178	189	83.0%	73.9%	76.6%	79.5%	-12.1	-25.9	1.7	-23.7	-0.5
SNF ADL, improved long-form (overall) function	198	215	73.0%	69.7%	68.5%	73.3%	-8.0	-18.9	2.9	-17.2	1.1
SNF ADL, improved early-loss (self-care) function	198	215	56.3%	52.8%	48.1%	58.8%	-14.1	-26.4	-1.8	-24.5	-3.8
SNF ADL, improved mid-loss (mobility) function	196	215	65.0%	60.9%	64.9%	69.7%	-8.9	-20.1	2.3	-18.3	0.5
IRF ADL, average change in mobility score[2]	52	39	9.1	9.5	9.8	8.1	2.1	-0.5	4.7	-0.1	4.3
IRF ADL, average change in self-care score[2]	52	39	10.8	11.6	11.9	10.7	2.0	-0.9	5.0	-0.5	4.5

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement

Exhibit O.17: Spinal Fusion (non-cervical) Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	1,229	1,223	$42,946	$42,618	$42,384	$41,043	$1,013	-$1,999	$4,025	-$1,515	$3,541
Total amount included in the bundle definition, 90 day episodes	1,229	1,223	$42,402	$42,234	$41,751	$40,493	$1,089	-$2,090	$4,269	-$1,579	$3,758
Total amount not included the bundle, 90 day episodes	1,229	1,223	$401	$385	$386	$278	$91	-$156	$339	-$116	$299
Allowed payment amount for Part B services, 30 days pre-bundle	1,229	1,223	$1,193	$1,285	$1,226	$1,175	$143	-$50	$336	-$19	$305
Total allowed payment amount, 30 days post-bundle	992	982	$1,399	$1,575	$1,592	$1,440	$327	-$174	$828	-$94	$748
Total allowed payment amount, 90 days post-bundle	826	825	$4,349	$4,918	$5,011	$4,417	$1,164	$137	$2,190	$302	$2,025
Total allowed payment amount, 120 days post-bundle	735	727	$6,009	$6,379	$6,347	$6,179	$537	-$1,080	$2,155	-$820	$1,895
Total allowed payment amount, 180 days post-bundle	709	703	$9,221	$9,536	$9,300	$9,248	$367	-$1,774	$2,509	-$1,429	$2,164
Inpatient anchor stay standardized allowed amount	1,236	1,236	$25,142	$25,761	$24,870	$24,592	$897	-$421	$2,214	-$210	$2,003
Readmissions standardized allowed amount, 90-day PDP	1,236	1,236	$1,910	$2,030	$1,956	$1,762	$313	-$365	$992	-$256	$883
SNF standardized allowed amount, 90-day PDP	1,236	1,236	$2,771	$2,903	$2,894	$2,829	$198	-$788	$1,184	-$630	$1,025
IRF standardized allowed amount, 90-day PDP	1,236	1,236	$3,083	$2,563	$2,568	$2,513	-$466	-$1,753	$821	-$1,547	$614
HHA standardized allowed amount, 90-day PDP	1,236	1,236	$1,454	$1,349	$1,332	$1,364	-$137	-$443	$168	-$394	$119
Therapy standardized allowed amount, 90-day PDP	1,229	1,223	$330	$273	$314	$233	$24	-$41	$89	-$30	$79
Imaging and laboratory services standardized allowed amount, 90-day PDP	1,229	1,223	$418	$442	$433	$397	$59	$0	$118	$10	$108
Procedures standardized allowed amount, 90-day PDP	1,229	1,223	$365	$334	$340	$265	$43	-$52	$138	-$36	$122
Evaluation and management standardized allowed amount, 90-day PDP	1,229	1,223	$903	$941	$896	$850	$84	-$55	$223	-$33	$200

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	1,229	1,223	$353	$346	$416	$460	-$52	-$192	$88	-$169	$66
Other non-institutional services standardized allowed amount, 90-day PDP	1,229	1,223	$225	$288	$239	$257	$45	-$28	$118	-$16	$107
Anchor inpatient length of stay	1,242	1,242	4.3	4.2	4.6	4.3	0.2	-0.2	0.5	-0.1	0.4
Number of institutional PAC days, 90-day PDP[1]	432	433	20.0	20.7	19.9	19.6	1.1	-3.2	5.4	-2.5	4.7
Number of SNF days, 90-day PDP[1]	292	273	24.3	23.0	22.7	22.7	-1.3	-6.6	4.1	-5.8	3.2
Number of HHA visits, 90-day PDP[1]	538	510	16.8	18.4	15.7	16.1	1.1	-0.6	2.7	-0.3	2.5
Patients discharged to PAC	1,242	1,241	55.0%	52.5%	53.5%	54.4%	-3.4	-11.9	5.1	-10.5	3.8
Patients discharged to institutional PAC (of those who received PAC)	684	661	63.1%	62.2%	66.3%	60.6%	4.7	-8.7	18.1	-6.5	16.0
Emergency department use, 30-day PDP	1,240	1,240	9.7%	11.9%	11.0%	10.3%	3.0	0.2	5.8	0.6	5.3
Emergency department use, 90-day PDP	1,234	1,234	16.5%	19.9%	18.6%	17.5%	4.5	1.0	7.9	1.6	7.4
Unplanned readmission rate, 30-day PDP	1,240	1,240	7.6%	7.3%	6.9%	7.4%	-0.9	-3.7	1.9	-3.3	1.5
Unplanned readmission rate, 90-day PDP	1,234	1,234	11.3%	12.1%	10.8%	11.0%	0.6	-2.5	3.7	-2.0	3.2
All-cause mortality rate, 30-day PDP	1,240	1,240	0.4%	0.2%	0.2%	0.3%	-0.4	-1.0	0.3	-0.9	0.2
All-cause mortality rate, 90-day PDP	1,234	1,234	0.8%	0.7%	0.7%	0.7%	0.0	-1.1	1.0	-0.9	0.9
HHA ADL, improved bathing	233	215	86.9%	89.5%	89.1%	88.9%	2.8	-5.8	11.3	-4.4	9.9
HHA ADL, improved ambulation	233	215	83.6%	79.2%	79.6%	77.9%	-2.6	-12.1	6.9	-10.6	5.4
HHA ADL, improved upper-body dressing	233	215	91.2%	89.7%	88.6%	91.4%	-4.3	-12.0	3.3	-10.8	2.1
HHA ADL, improved lower-body dressing	233	215	84.9%	86.4%	87.1%	87.1%	1.5	-6.8	9.7	-5.4	8.3
HHA ADL, improved bed transferring	233	215	76.2%	74.7%	77.9%	79.5%	-3.1	-13.1	6.9	-11.5	5.3
SNF ADL, improved long-form (overall) function	195	190	72.9%	68.6%	77.5%	81.9%	-8.6	-18.9	1.6	-17.3	0.0
SNF ADL, improved early-loss (self-care) function	196	190	60.1%	50.7%	61.8%	65.8%	-13.4	-26.6	-0.2	-24.5	-2.3
SNF ADL, improved mid-loss (mobility) function	195	190	67.1%	66.7%	73.9%	75.5%	-2.0	-12.1	8.0	-10.5	6.4
IRF ADL, average change in mobility score[2]	140	163	9.7	9.3	9.3	10.4	-1.6	-3.1	0.0	-2.9	-0.3
IRF ADL, average change in self-care score[2]	140	163	11.7	10.9	11.5	13.0	-2.4	-4.0	-0.8	-3.7	-1.1

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement

Exhibit O.18: Hip & Femur Procedures except Major Joint Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,789	2,791	$47,483	$44,766	$47,780	$45,228	-$164	-$1,650	$1,322	-$1,411	$1,083
Total amount included in the bundle definition, 90 day episodes	2,771	2,774	$46,817	$44,220	$47,364	$44,820	-$54	-$1,551	$1,442	-$1,310	$1,202
Total amount not included the bundle, 90 day episodes	2,771	2,774	$638	$517	$532	$548	-$138	-$320	$43	-$290	$14
Allowed payment amount for Part B services, 30 days pre-bundle	2,789	2,792	$1,463	$1,477	$1,437	$1,462	-$12	-$124	$99	-$106	$82
Total allowed payment amount, 30 days post-bundle	2,036	1,998	$3,790	$3,612	$3,819	$3,403	$238	-$297	$772	-$211	$686
Total allowed payment amount, 90 days post-bundle	1,640	1,615	$10,180	$9,331	$9,743	$9,126	-$232	-$1,722	$1,258	-$1,482	$1,018
Total allowed payment amount, 120 days post-bundle	1,294	1,276	$12,995	$11,752	$11,629	$10,519	-$133	-$2,180	$1,914	-$1,851	$1,585
Total allowed payment amount, 180 days post-bundle	1,174	1,163	$17,099	$15,881	$15,574	$14,298	$58	-$2,489	$2,605	-$2,080	$2,196
Inpatient anchor stay standardized allowed amount	2,799	2,803	$12,132	$11,843	$12,195	$11,867	$38	-$47	$122	-$33	$109
Readmissions standardized allowed amount, 90-day PDP	2,799	2,802	$3,083	$2,868	$2,877	$2,484	$177	-$289	$644	-$214	$569
SNF standardized allowed amount, 90-day PDP	2,799	2,802	$19,286	$17,757	$18,813	$18,225	-$940	-$2,327	$447	-$2,104	$224
IRF standardized allowed amount, 90-day PDP	2,799	2,802	$3,581	$3,553	$4,454	$4,135	$291	-$583	$1,166	-$443	$1,025
HHA standardized allowed amount, 90-day PDP	2,799	2,802	$2,027	$2,172	$2,175	$1,943	$377	$202	$553	$230	$524
Therapy standardized allowed amount, 90-day PDP	2,789	2,791	$285	$254	$270	$231	$8	-$53	$68	-$43	$59
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,789	2,791	$322	$311	$314	$299	$4	-$23	$32	-$19	$28
Procedures standardized allowed amount, 90-day PDP	2,789	2,791	$252	$218	$244	$201	$8	-$30	$47	-$24	$41
Evaluation and management standardized allowed amount, 90-day PDP	2,789	2,791	$1,699	$1,709	$1,663	$1,595	$78	-$50	$206	-$29	$186

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	2,789	2,791	$355	$383	$382	$425	-$16	-$103	$72	-$89	$58
Other non-institutional services standardized allowed amount, 90-day PDP	2,789	2,791	$616	$514	$542	$497	-$58	-$122	$6	-$112	-$4
Anchor inpatient length of stay	2,823	2,823	6.0	5.8	6.0	5.8	0.0	-0.1	0.2	-0.1	0.2
Number of institutional PAC days, 90-day PDP[1]	2,547	2,453	42.5	39.1	42.7	41.1	-1.7	-3.9	0.4	-3.5	0.1
Number of SNF days, 90-day PDP[1]	2,220	2,091	45.5	42.1	46.4	44.1	-1.2	-3.4	1.0	-3.0	0.6
Number of HHA visits, 90-day PDP[1]	1,631	1,499	19.8	21.2	20.0	19.5	1.9	0.5	3.3	0.7	3.1
Patients discharged to PAC	2,823	2,823	93.5%	94.0%	93.7%	93.9%	0.2	-1.6	2.0	-1.3	1.7
Patients discharged to institutional PAC (of those who received PAC)	2,677	2,628	93.5%	93.4%	93.5%	93.2%	0.1	-1.6	1.9	-1.3	1.6
Emergency department use, 30-day PDP	2,822	2,822	7.2%	7.4%	6.8%	8.0%	-1.0	-2.8	0.9	-2.5	0.6
Emergency department use, 90-day PDP	2,798	2,801	17.0%	18.0%	16.1%	16.8%	0.3	-2.5	3.0	-2.0	2.6
Unplanned readmission rate, 30-day PDP	2,822	2,822	12.7%	11.3%	11.3%	10.4%	-0.5	-2.7	1.8	-2.4	1.4
Unplanned readmission rate, 90-day PDP	2,798	2,801	22.2%	21.9%	21.4%	18.4%	2.7	-0.1	5.6	0.4	5.1
All-cause mortality rate, 30-day PDP	2,784	2,766	4.4%	4.4%	4.6%	4.8%	-0.2	-1.6	1.1	-1.4	0.9
All-cause mortality rate, 90-day PDP	2,760	2,746	9.7%	9.5%	10.4%	10.4%	-0.2	-2.3	1.8	-1.9	1.5
HHA ADL, improved bathing	113	143	74.0%	82.4%	76.6%	80.4%	4.6	-6.6	15.9	-4.8	14.1
HHA ADL, improved ambulation	113	143	58.4%	69.0%	65.2%	69.7%	6.1	-7.8	20.0	-5.6	17.8
HHA ADL, improved upper-body dressing	113	143	75.0%	78.7%	78.1%	78.0%	3.8	-8.2	15.8	-6.3	13.9
HHA ADL, improved lower-body dressing	113	143	69.0%	73.6%	73.1%	80.9%	-3.1	-14.8	8.7	-12.9	6.8
HHA ADL, improved bed transferring	113	143	59.4%	71.4%	65.9%	72.4%	5.5	-8.3	19.3	-6.1	17.1
SNF ADL, improved long-form (overall) function	1,772	1,541	67.3%	63.7%	68.4%	66.8%	-2.0	-6.3	2.3	-5.6	1.7
SNF ADL, improved early-loss (self-care) function	1,772	1,543	44.1%	41.3%	45.5%	44.8%	-2.2	-7.8	3.5	-6.9	2.6
SNF ADL, improved mid-loss (mobility) function	1,765	1,537	63.2%	60.2%	65.6%	65.0%	-2.3	-6.5	1.8	-5.8	1.2
IRF ADL, average change in mobility score[2]	428	517	7.9	8.2	7.6	8.3	-0.4	-1.3	0.5	-1.2	0.3
IRF ADL, average change in self-care score[2]	428	517	11.5	11.5	11.0	11.6	-0.5	-1.5	0.5	-1.3	0.3

1 Dependent on having at least one day or visit in the given setting
2 A positive value indicates improvement

Exhibit O.19: Sepsis Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	10,209	10,222	$34,590	$31,733	$35,073	$32,330	-$114	-$1,250	$1,023	-$1,067	$840
Total amount included in the bundle definition, 90 day episodes	10,064	10,070	$32,671	$30,005	$33,279	$30,593	$20	-$931	$972	-$778	$819
Total amount not included the bundle, 90 day episodes	10,064	10,070	$1,313	$1,260	$1,228	$1,240	-$65	-$237	$107	-$209	$79
Allowed payment amount for Part B services, 30 days pre-bundle	10,218	10,226	$2,064	$2,012	$2,111	$2,072	-$13	-$119	$93	-$102	$76
Total allowed payment amount, 30 days post-bundle	5,994	6,136	$4,481	$4,160	$4,595	$4,082	$192	-$196	$581	-$134	$519
Total allowed payment amount, 90 days post-bundle	4,360	4,448	$12,382	$11,659	$13,393	$11,596	$1,075	-$47	$2,196	$134	$2,016
Total allowed payment amount, 120 days post-bundle	2,984	3,058	$18,004	$16,230	$15,772	$13,564	$434	-$1,474	$2,342	-$1,167	$2,036
Total allowed payment amount, 180 days post-bundle	2,744	2,803	$23,776	$21,951	$21,730	$19,256	$649	-$1,818	$3,117	-$1,421	$2,720
Inpatient anchor stay standardized allowed amount	10,286	10,325	$11,724	$10,581	$11,724	$10,594	-$13	-$168	$142	-$143	$117
Readmissions standardized allowed amount, 90-day PDP	10,276	10,322	$5,078	$4,711	$5,298	$4,649	$282	-$143	$707	-$74	$639
SNF standardized allowed amount, 90-day PDP	10,276	10,322	$6,949	$6,640	$6,693	$6,465	-$82	-$588	$425	-$506	$343
IRF standardized allowed amount, 90-day PDP	10,276	10,322	$640	$553	$687	$727	-$127	-$286	$31	-$260	$6
LTCH standardized allowed amount, 90-day PDP	10,276	10,322	$2,211	$1,773	$2,320	$1,939	-$57	-$577	$464	-$494	$380
HHA standardized allowed amount, 90-day PDP	10,276	10,322	$1,081	$1,128	$1,130	$1,080	$97	$22	$171	$34	$159
Therapy standardized allowed amount, 90-day PDP	10,209	10,223	$166	$133	$186	$152	$2	-$24	$28	-$20	$24
Imaging and laboratory services standardized allowed amount, 90-day PDP	10,209	10,223	$394	$380	$426	$393	$19	-$3	$40	$0	$37
Procedures standardized allowed amount, 90-day PDP	10,209	10,223	$340	$310	$375	$329	$16	-$12	$45	-$8	$40
Evaluation and management standardized allowed amount, 90-day PDP	10,209	10,223	$1,738	$1,659	$1,837	$1,698	$59	-$44	$161	-$27	$145

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	10,209	10,223	$638	$722	$711	$843	-$48	-$143	$47	-$127	$32
Other non-institutional services standardized allowed amount, 90-day PDP	10,209	10,223	$656	$590	$693	$601	$26	-$20	$72	-$12	$64
Anchor inpatient length of stay	10,483	10,482	7.2	6.9	7.1	6.6	0.2	0.0	0.4	0.0	0.3
Number of institutional PAC days, 90-day PDP[1]	4,461	3,819	35.9	34.2	36.3	35.3	-0.7	-2.4	1.0	-2.1	0.7
Number of SNF days, 90-day PDP[1]	4,087	3,328	35.6	33.9	36.3	35.3	-0.6	-2.4	1.1	-2.1	0.8
Number of HHA visits, 90-day PDP[1]	3,438	3,392	17.9	18.8	18.4	18.8	0.5	-0.4	1.4	-0.3	1.2
Patients discharged to PAC	10,455	10,459	56.5%	56.3%	55.2%	53.7%	1.3	-1.0	3.5	-0.6	3.1
Patients discharged to institutional PAC (of those who received PAC)	6,040	5,478	68.3%	66.1%	65.8%	65.2%	-1.6	-4.0	0.9	-3.6	0.5
Emergency department use, 30-day PDP	10,376	10,403	9.0%	10.0%	9.6%	10.1%	0.5	-0.5	1.6	-0.4	1.4
Emergency department use, 90-day PDP	10,173	10,246	18.4%	20.0%	18.3%	20.0%	-0.1	-1.6	1.4	-1.4	1.2
Unplanned readmission rate, 30-day PDP	10,376	10,403	17.4%	15.6%	17.4%	15.3%	0.3	-1.1	1.7	-0.9	1.5
Unplanned readmission rate, 90-day PDP	10,173	10,246	30.1%	27.9%	30.1%	27.6%	0.2	-1.4	1.9	-1.2	1.6
All-cause mortality rate, 30-day PDP	10,251	10,249	14.7%	13.4%	13.7%	12.8%	-0.5	-1.8	0.8	-1.6	0.6
All-cause mortality rate, 90-day PDP	10,050	10,096	22.8%	20.8%	21.8%	20.0%	-0.1	-1.5	1.2	-1.3	1.0
HHA ADL, improved bathing	1,236	1,377	58.8%	62.3%	59.1%	58.7%	3.9	-0.9	8.6	-0.1	7.9
HHA ADL, improved ambulation	1,236	1,377	58.1%	60.0%	56.7%	57.4%	1.3	-3.7	6.3	-2.9	5.5
HHA ADL, improved upper-body dressing	1,236	1,377	63.5%	64.9%	63.8%	63.1%	2.0	-2.8	6.9	-2.1	6.1
HHA ADL, improved lower-body dressing	1,236	1,377	62.2%	64.0%	61.9%	62.3%	1.4	-3.2	5.9	-2.4	5.2
HHA ADL, improved bed transferring	1,236	1,377	57.6%	55.8%	55.7%	54.5%	-0.6	-5.3	4.0	-4.5	3.3
SNF ADL, improved long-form (overall) function	2,889	2,222	48.7%	49.5%	49.6%	52.4%	-1.9	-6.0	2.1	-5.3	1.4
SNF ADL, improved early-loss (self-care) function	2,891	2,223	28.7%	27.8%	29.6%	32.4%	-3.8	-7.4	-0.2	-6.8	-0.8
SNF ADL, improved mid-loss (mobility) function	2,890	2,221	41.3%	42.8%	43.2%	45.7%	-1.0	-4.5	2.5	-3.9	2.0
IRF ADL, average change in mobility score[2]	207	285	6.6	7.7	7.3	8.0	0.4	-0.6	1.5	-0.5	1.3
IRF ADL, average change in self-care score[2]	207	285	10.2	11.0	10.4	11.3	-0.1	-1.5	1.3	-1.3	1.0

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement

Exhibit O.20: Simple Pneumonia and Respiratory Infections Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	9,374	9,369	$24,628	$22,664	$24,836	$23,095	-$224	-$1,005	$557	-$879	$432
Total amount included in the bundle definition, 30 day episodes	764	762	$15,521	$13,920	$17,358	$15,388	$368	-$819	$1,556	-$628	$1,365
Total amount included in the bundle definition, 90 day episodes	8,625	8,611	$23,644	$21,615	$23,864	$22,334	-$499	-$1,254	$257	-$1,133	$135
Total amount not included the bundle, 30 day episodes	764	762	$260	$415	$260	$391	$24	-$176	$224	-$144	$191
Total amount not included the bundle, 90 day episodes	8,625	8,611	$1,006	$1,034	$988	$923	$93	-$54	$239	-$30	$216
Allowed payment amount for Part B services, 30 days pre-bundle	9,389	9,373	$1,750	$1,749	$1,726	$1,692	$33	-$44	$110	-$32	$98
Total allowed payment amount, 30 days post-bundle	6,603	6,654	$3,667	$3,292	$3,556	$3,286	-$105	-$387	$176	-$342	$131
Total allowed payment amount, 90 days post-bundle	5,375	5,379	$10,481	$9,735	$10,505	$9,759	$0	-$765	$764	-$642	$642
Total allowed payment amount, 120 days post-bundle	4,056	4,067	$13,191	$12,994	$12,692	$12,245	$250	-$898	$1,398	-$714	$1,214
Total allowed payment amount, 180 days post-bundle	3,787	3,741	$18,239	$17,974	$18,219	$17,101	$852	-$557	$2,261	-$330	$2,034
Inpatient anchor stay standardized allowed amount	9,444	9,453	$7,574	$6,916	$7,593	$6,910	$26	-$26	$77	-$17	$69
Readmissions standardized allowed amount, 90-day PDP	9,431	9,449	$4,040	$3,694	$3,971	$3,528	$97	-$190	$383	-$144	$337
SNF standardized allowed amount, 90-day PDP	9,431	9,449	$5,045	$4,798	$5,044	$5,033	-$235	-$630	$160	-$567	$97
IRF standardized allowed amount, 90-day PDP	9,431	9,449	$496	$506	$522	$464	$68	-$103	$240	-$75	$212
LTCH standardized allowed amount, 90-day PDP	9,431	9,449	$872	$467	$958	$754	-$201	-$506	$104	-$457	$55
HHA standardized allowed amount, 90-day PDP	9,431	9,449	$1,177	$1,182	$1,195	$1,137	$62	-$23	$148	-$9	$134
Therapy standardized allowed amount, 90-day PDP	9,376	9,369	$149	$114	$149	$137	-$22	-$45	$0	-$41	-$3

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Imaging and laboratory services standardized allowed amount, 90-day PDP	9,376	9,369	$432	$423	$437	$414	$13	-$11	$36	-$7	$33
Procedures standardized allowed amount, 90-day PDP	9,376	9,369	$269	$252	$271	$251	$4	-$22	$30	-$18	$26
Evaluation and management standardized allowed amount, 90-day PDP	9,376	9,369	$1,393	$1,334	$1,398	$1,329	$11	-$60	$81	-$48	$70
Other institutional services standardized allowed amount, 90-day PDP	9,376	9,369	$631	$745	$631	$762	-$17	-$105	$72	-$91	$58
Other non-institutional services standardized allowed amount, 90-day PDP	9,376	9,369	$565	$531	$562	$533	-$6	-$53	$40	-$45	$32
Anchor inpatient length of stay	9,523	9,521	5.7	5.4	5.8	5.4	0.1	0.0	0.3	0.0	0.2
Number of institutional PAC days, 90-day PDP[1]	3,233	2,913	31.7	30.0	32.5	33.0	-2.2	-4.0	-0.5	-3.7	-0.7
Number of SNF days, 90-day PDP[1]	3,034	2,634	32.0	30.5	33.1	33.6	-2.1	-4.0	-0.3	-3.7	-0.6
Number of HHA visits, 90-day PDP[1]	3,294	3,144	18.1	18.7	18.1	18.4	0.3	-0.6	1.2	-0.5	1.1
Patients discharged to PAC	9,519	9,517	49.8%	49.6%	50.5%	48.6%	1.7	-0.7	4.0	-0.3	3.7
Patients discharged to institutional PAC (of those who received PAC)	4,887	4,565	58.3%	56.1%	56.6%	56.1%	-1.6	-4.2	0.9	-3.8	0.5
Emergency department use, 30-day PDP	9,467	9,464	9.7%	10.4%	9.4%	10.6%	-0.5	-1.7	0.6	-1.5	0.4
Emergency department use, 90-day PDP	9,378	9,393	20.0%	21.6%	19.1%	20.8%	-0.2	-1.8	1.4	-1.5	1.2
Unplanned readmission rate, 30-day PDP	9,467	9,464	15.0%	14.0%	14.9%	13.9%	0.0*	-1.3	1.3	-1.1	1.1
Unplanned readmission rate, 90-day PDP	9,378	9,393	27.3%	25.6%	26.6%	25.1%	-0.3	-1.8	1.2	-1.6	1.0
All-cause mortality rate, 30-day PDP	9,352	9,353	9.7%	9.1%	9.5%	8.4%	0.5*	-0.6	1.5	-0.4	1.3
All-cause mortality rate, 90-day PDP	9,263	9,282	17.3%	15.9%	17.0%	15.0%	0.6*	-0.8	2.0	-0.6	1.7
HHA ADL, improved bathing	1,413	1,493	59.5%	63.3%	59.7%	58.8%	4.6	0.0	9.2	0.8	8.5
HHA ADL, improved ambulation	1,413	1,493	59.3%	58.4%	57.1%	58.5%	-2.4	-6.5	1.7	-5.8	1.1
HHA ADL, improved upper-body dressing	1,413	1,493	64.7%	68.2%	65.3%	67.0%	1.8	-2.2	5.8	-1.6	5.2
HHA ADL, improved lower-body dressing	1,413	1,493	63.6%	66.8%	63.7%	65.8%	1.0	-3.2	5.2	-2.5	4.5
HHA ADL, improved bed transferring	1,413	1,493	56.8%	58.3%	57.4%	56.8%	2.2	-1.8	6.2	-1.2	5.5
SNF ADL, improved long-form (overall) function	2,069	1,802	51.9%	53.1%	50.9%	53.9%	-1.8	-6.4	2.8	-5.7	2.1
SNF ADL, improved early-loss (self-care) function	2,070	1,803	30.3%	32.2%	31.9%	31.6%	2.1	-2.1	6.3	-1.4	5.7
SNF ADL, improved mid-loss (mobility) function	2,070	1,800	45.3%	46.0%	44.4%	48.2%	-3.0	-7.8	1.8	-7.0	1.0

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
IRF ADL, average change in mobility score[2]	138	179	7.1	8.1	7.7	8.0	0.6	-0.7	2.0	-0.5	1.8
IRF ADL, average change in self-care score[2]	138	179	10.2	10.9	10.1	10.4	0.5	-1.5	2.4	-1.1	2.1

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement
* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.21: Other Respiratory Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	1,683	1,697	$33,271	$32,135	$32,577	$30,136	$1,305	-$1,113	$3,722	-$724	$3,334
Total amount included in the bundle definition, 90 day episodes	1,684	1,697	$31,146	$30,001	$31,050	$28,653	$1,252	-$848	$3,352	-$511	$3,014
Total amount not included the bundle, 90 day episodes	1,684	1,697	$1,102	$1,137	$955	$1,004	-$14	-$357	$328	-$302	$273
Allowed payment amount for Part B services, 30 days pre-bundle	1,684	1,697	$2,022	$2,019	$2,071	$2,104	-$35	-$249	$179	-$214	$145
Total allowed payment amount, 30 days post-bundle	1,044	1,068	$4,859	$5,067	$4,614	$3,586	$1,235	$335	$2,135	$480	$1,990
Total allowed payment amount, 90 days post-bundle	774	745	$13,970	$13,213	$13,671	$11,232	$1,682	-$752	$4,117	-$361	$3,725
Total allowed payment amount, 120 days post-bundle	473	477	$18,915	$16,738	$14,903	$14,849	-$2,123	-$5,937	$1,691	-$5,324	$1,078
Total allowed payment amount, 180 days post-bundle	418	434	$24,759	$22,642	$20,354	$21,343	-$3,106	-$7,698	$1,486	-$6,960	$748
Inpatient anchor stay standardized allowed amount	1,705	1,712	$10,944	$10,396	$11,102	$10,388	$167	-$142	$476	-$92	$426
Readmissions standardized allowed amount, 90-day PDP	1,705	1,712	$5,930	$5,605	$5,677	$5,098	$254	-$676	$1,184	-$527	$1,034
SNF standardized allowed amount, 90-day PDP	1,705	1,712	$4,567	$4,825	$4,865	$4,823	$299	-$584	$1,181	-$442	$1,039
HHA standardized allowed amount, 90-day PDP	1,705	1,712	$1,260	$1,211	$1,239	$1,126	$64	-$108	$237	-$80	$209
Therapy standardized allowed amount, 90-day PDP	1,684	1,697	$116	$128	$129	$124	$18	-$30	$66	-$23	$58
Imaging and laboratory services standardized allowed amount, 90-day PDP	1,684	1,697	$466	$456	$495	$458	$27	-$23	$77	-$15	$69
Procedures standardized allowed amount, 90-day PDP	1,684	1,697	$317	$312	$298	$278	$14	-$46	$74	-$36	$64
Evaluation and management standardized allowed amount, 90-day PDP	1,684	1,697	$1,908	$1,826	$1,778	$1,639	$57	-$162	$275	-$127	$240
Other institutional services standardized allowed amount, 90-day PDP	1,684	1,697	$711	$952	$775	$941	$74	-$118	$266	-$88	$235

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other non-institutional services standardized allowed amount, 90-day PDP	1,684	1,697	$621	$565	$655	$618	-$20	-$115	$75	-$99	$60
Anchor inpatient length of stay	1,736	1,736	6.2	6.0	6.5	6.2	0.2	-0.2	0.6	-0.2	0.5
Number of institutional PAC days, 90-day PDP[1]	563	544	32.0	32.7	31.3	31.5	0.5	-2.8	3.8	-2.3	3.3
Number of SNF days, 90-day PDP[1]	479	470	31.5	32.6	31.3	31.8	0.6	-3.0	4.1	-2.4	3.6
Number of HHA visits, 90-day PDP[1]	660	596	17.8	18.2	18.2	18.3	0.3	-1.7	2.4	-1.4	2.1
Patients discharged to PAC	1,727	1,731	50.9%	51.7%	52.3%	49.8%	3.3	-1.2	7.8	-0.5	7.0
Patients discharged to institutional PAC (of those who received PAC)	917	830	56.2%	54.8%	56.1%	59.5%	-4.9	-10.2	0.5	-9.4	-0.3
Emergency department use, 30-day PDP	1,709	1,713	9.6%	10.4%	11.7%	10.6%	1.9	-0.6	4.5	-0.2	4.1
Emergency department use, 90-day PDP	1,679	1,689	21.0%	22.3%	23.0%	22.5%	1.7	-2.0	5.3	-1.4	4.8
Unplanned readmission rate, 30-day PDP	1,709	1,713	20.4%	17.5%	19.5%	17.7%	-1.0*	-4.3	2.3	-3.7	1.7
Unplanned readmission rate, 90-day PDP	1,679	1,689	34.5%	33.8%	34.5%	31.3%	2.5	-1.6	6.6	-0.9	5.9
All-cause mortality rate, 30-day PDP	1,699	1,701	11.4%	11.8%	11.1%	11.6%	-0.1	-2.5	2.3	-2.1	1.9
All-cause mortality rate, 90-day PDP	1,669	1,678	19.4%	18.0%	19.3%	19.9%	-1.9	-4.9	1.2	-4.4	0.7
HHA ADL, improved bathing	302	227	65.6%	63.2%	61.0%	59.3%	-0.7	-10.0	8.5	-8.5	7.1
HHA ADL, improved ambulation	302	227	63.5%	62.6%	60.9%	57.0%	3.0	-7.1	13.1	-5.4	11.5
HHA ADL, improved upper-body dressing	302	227	69.3%	66.2%	68.8%	65.4%	0.3	-7.9	8.5	-6.5	7.2
HHA ADL, improved lower-body dressing	302	227	67.4%	66.7%	68.4%	65.7%	2.1	-6.4	10.6	-5.0	9.3
HHA ADL, improved bed transferring	302	227	62.6%	58.6%	58.6%	58.6%	-3.9	-12.9	5.0	-11.4	3.6
SNF ADL, improved long-form (overall) function	314	300	50.6%	58.9%	55.1%	61.0%	2.3	-7.2	11.8	-5.6	10.3
SNF ADL, improved early-loss (self-care) function	314	300	33.8%	34.7%	35.8%	40.2%	-3.5	-12.5	5.5	-11.1	4.0
SNF ADL, improved mid-loss (mobility) function	314	300	46.6%	54.7%	50.3%	54.0%	4.4	-5.5	14.2	-3.9	12.6
IRF ADL, average change in mobility score[2]	50	49	7.1	7.5	7.3	8.1	-0.4	-2.8	2.0	-2.4	1.6
IRF ADL, average change in self-care score[2]	50	49	9.0	10.3	10.4	12.6	-0.9	-4.1	2.4	-3.6	1.9

[1] Dependent on having at least one day or visit in the given setting

[2] A positive value indicates improvement

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.22: Renal Failure Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,873	2,871	$26,949	$24,532	$27,595	$25,210	-$32	-$1,351	$1,287	-$1,139	$1,075
Total amount included in the bundle definition, 90 day episodes	2,768	2,766	$25,640	$23,124	$26,265	$23,987	-$238	-$1,473	$996	-$1,274	$798
Total amount not included the bundle, 90 day episodes	2,768	2,766	$1,350	$1,502	$1,514	$1,395	$271	$3	$538	$46	$495
Allowed payment amount for Part B services, 30 days pre-bundle	2,873	2,872	$1,895	$1,842	$1,902	$1,870	-$20	-$163	$122	-$140	$99
Total allowed payment amount, 30 days post-bundle	1,845	1,793	$4,241	$3,775	$4,306	$4,221	-$381	-$1,021	$260	-$918	$157
Total allowed payment amount, 90 days post-bundle	1,291	1,266	$12,198	$10,881	$12,668	$12,084	-$735	-$2,608	$1,139	-$2,307	$838
Total allowed payment amount, 120 days post-bundle	872	848	$14,594	$13,725	$16,577	$15,045	$663	-$1,890	$3,216	-$1,480	$2,806
Total allowed payment amount, 180 days post-bundle	796	741	$20,838	$18,391	$22,912	$22,391	-$1,926	-$5,099	$1,247	-$4,589	$737
Inpatient anchor stay standardized allowed amount	2,905	2,901	$7,130	$6,280	$7,133	$6,327	-$44	-$126	$37	-$113	$24
Readmissions standardized allowed amount, 90-day PDP	2,905	2,900	$4,780	$4,388	$4,720	$4,074	$253	-$284	$790	-$197	$704
SNF standardized allowed amount, 90-day PDP	2,905	2,900	$6,176	$6,082	$6,426	$6,306	$26	-$780	$832	-$651	$703
IRF standardized allowed amount, 90-day PDP	2,905	2,900	$763	$636	$834	$836	-$129	-$418	$160	-$371	$114
HHA standardized allowed amount, 90-day PDP	2,905	2,900	$1,200	$1,238	$1,301	$1,236	$103	-$37	$243	-$15	$221
Therapy standardized allowed amount, 90-day PDP	2,873	2,871	$150	$124	$145	$116	$3	-$38	$45	-$32	$38
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,873	2,871	$460	$438	$469	$410	$37	$2	$72	$7	$66
Procedures standardized allowed amount, 90-day PDP	2,873	2,871	$349	$318	$386	$306	$49	$2	$95	$10	$88
Evaluation and management standardized allowed amount, 90-day PDP	2,873	2,871	$1,733	$1,616	$1,776	$1,655	$5	-$124	$133	-$103	$112

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	2,873	2,871	$713	$751	$770	$808	$1	-$147	$148	-$123	$124
Other non-institutional services standardized allowed amount, 90-day PDP	2,873	2,871	$589	$557	$615	$579	$4	-$71	$80	-$59	$68
Anchor inpatient length of stay	2,927	2,927	5.4	5.0	5.3	5.0	-0.1	-0.3	0.1	-0.3	0.1
Number of institutional PAC days, 90-day PDP[1]	1,132	975	34.8	33.1	36.1	35.6	-1.2	-4.2	1.8	-3.7	1.3
Number of SNF days, 90-day PDP[1]	1,051	877	35.6	33.7	36.9	37.1	-2.1	-5.3	1.2	-4.8	0.6
Number of HHA visits, 90-day PDP[1]	1,049	1,006	18.7	19.6	18.2	18.8	0.3	-1.3	1.8	-1.0	1.6
Patients discharged to PAC	2,923	2,924	51.3%	49.9%	53.0%	52.2%	-0.6	-4.0	2.8	-3.5	2.3
Patients discharged to institutional PAC (of those who received PAC)	1,529	1,461	59.7%	58.0%	57.7%	56.5%	-0.5	-5.0	3.9	-4.2	3.2
Emergency department use, 30-day PDP	2,898	2,899	11.2%	11.6%	10.5%	12.0%	-1.1	-2.9	0.7	-2.6	0.4
Emergency department use, 90-day PDP	2,877	2,872	22.0%	23.2%	20.5%	22.8%	-1.2	-3.8	1.4	-3.3	1.0
Unplanned readmission rate, 30-day PDP	2,898	2,899	17.0%	16.7%	17.1%	15.4%	1.4	-1.2	4.0	-0.8	3.6
Unplanned readmission rate, 90-day PDP	2,877	2,872	30.9%	28.9%	31.3%	29.2%	0.0	-2.5	2.5	-2.1	2.1
All-cause mortality rate, 30-day PDP	2,875	2,871	9.5%	7.6%	9.3%	9.8%	-2.5	-4.2	-0.8	-3.9	-1.1
All-cause mortality rate, 90-day PDP	2,854	2,844	17.6%	15.1%	16.5%	16.4%	-2.4	-4.5	-0.2	-4.2	-0.6
HHA ADL, improved bathing	389	407	59.6%	58.7%	59.9%	61.3%	-2.3	-10.4	5.8	-9.1	4.5
HHA ADL, improved ambulation	389	407	57.2%	58.3%	54.8%	51.9%	4.1	-5.1	13.3	-3.6	11.8
HHA ADL, improved upper-body dressing	389	407	65.1%	64.0%	64.7%	61.8%	1.8	-6.7	10.3	-5.3	8.9
HHA ADL, improved lower-body dressing	389	407	63.6%	66.6%	63.2%	61.4%	4.8	-3.8	13.3	-2.5	12.0
HHA ADL, improved bed transferring	389	407	51.9%	56.5%	54.0%	51.8%	6.8	-1.4	15.0	-0.1	13.6
SNF ADL, improved long-form (overall) function	699	594	51.2%	56.8%	53.6%	54.4%	4.9	-2.2	11.9	-1.0	10.8
SNF ADL, improved early-loss (self-care) function	699	594	31.0%	31.0%	32.3%	36.7%	-4.4	-11.4	2.5	-10.3	1.4
SNF ADL, improved mid-loss (mobility) function	699	594	46.4%	49.0%	48.4%	51.4%	-0.4	-7.0	6.2	-5.9	5.1
IRF ADL, average change in mobility score[2]	77	84	8.2	9.0	7.2	8.5	-0.4	-2.5	1.6	-2.2	1.3
IRF ADL, average change in self-care score[2]	77	84	11.8	13.1	10.6	11.5	0.4	-3.0	3.8	-2.5	3.3

[1] Dependent on having at least one day or visit in the given setting
[2] A positive value indicates improvement

Exhibit O.23: Nutritional and Metabolic Disorders Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	877	873	$23,066	$23,502	$22,024	$22,166	$294	-$2,068	$2,655	-$1,688	$2,275
Total amount included in the bundle definition, 90 day episodes	877	873	$21,936	$21,671	$21,100	$20,791	$44	-$2,172	$2,261	-$1,816	$1,904
Total amount not included the bundle, 90 day episodes	877	873	$1,366	$1,786	$1,324	$1,740	$4	-$559	$566	-$468	$476
Allowed payment amount for Part B services, 30 days pre-bundle	877	873	$2,031	$2,061	$1,959	$1,977	$11	-$333	$355	-$278	$300
Total allowed payment amount, 30 days post-bundle	581	556	$3,398	$3,493	$3,638	$3,513	$221	-$899	$1,340	-$719	$1,160
Total allowed payment amount, 90 days post-bundle	428	415	$10,741	$9,798	$10,513	$10,517	-$947	-$3,900	$2,005	-$3,425	$1,531
Total allowed payment amount, 120 days post-bundle	343	319	$14,142	$12,317	$15,116	$13,589	-$297	-$4,959	$4,364	-$4,210	$3,615
Total allowed payment amount, 180 days post-bundle	313	292	$18,824	$16,880	$20,850	$18,428	$478	-$5,076	$6,032	-$4,183	$5,140
Inpatient anchor stay standardized allowed amount	891	892	$4,913	$4,674	$4,943	$4,651	$52	-$67	$171	-$48	$152
Readmissions standardized allowed amount, 90-day PDP	891	892	$3,992	$4,092	$4,082	$4,290	-$108	-$1,147	$931	-$980	$764
SNF standardized allowed amount, 90-day PDP	891	892	$6,615	$6,359	$5,418	$5,877	-$714	-$2,133	$705	-$1,905	$477
HHA standardized allowed amount, 90-day PDP	891	892	$1,195	$1,320	$1,131	$1,233	$23	-$224	$269	-$184	$229
Therapy standardized allowed amount, 90-day PDP	877	873	$167	$116	$155	$148	-$44	-$113	$24	-$102	$13
Imaging and laboratory services standardized allowed amount, 90-day PDP	877	873	$453	$496	$461	$474	$31	-$50	$111	-$37	$98
Procedures standardized allowed amount, 90-day PDP	877	873	$332	$328	$323	$314	$5	-$87	$97	-$72	$82
Evaluation and management standardized allowed amount, 90-day PDP	877	873	$1,620	$1,790	$1,483	$1,526	$128	-$75	$332	-$43	$299

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	877	873	$723	$926	$664	$768	$98	-$196	$393	-$149	$346
Other non-institutional services standardized allowed amount, 90-day PDP	877	873	$584	$543	$591	$629	-$79	-$209	$50	-$188	$29
Anchor inpatient length of stay	894	894	4.5	4.3	4.4	4.3	-0.1	-0.4	0.2	-0.3	0.2
Number of institutional PAC days, 90-day PDP[1]	348	298	36.1	34.6	34.4	35.3	-2.4	-7.3	2.4	-6.5	1.6
Number of SNF days, 90-day PDP[1]	326	272	36.1	34.9	35.0	36.4	-2.6	-7.6	2.4	-6.8	1.6
Number of HHA visits, 90-day PDP[1]	347	330	19.2	17.3	19.2	20.0	-2.6	-6.3	1.2	-5.7	0.6
Patients discharged to PAC	894	894	51.7%	53.3%	47.9%	49.8%	-0.3	-6.0	5.4	-5.1	4.5
Patients discharged to institutional PAC (of those who received PAC)	494	443	60.4%	56.4%	53.8%	53.2%	-3.5	-12.8	5.9	-11.3	4.4
Emergency department use, 30-day PDP	880	882	10.9%	13.7%	10.7%	11.3%	2.3	-1.1	5.6	-0.5	5.0
Emergency department use, 90-day PDP	877	880	21.4%	23.8%	22.1%	20.9%	3.7	-1.0	8.3	-0.2	7.6
Unplanned readmission rate, 30-day PDP	880	882	15.0%	14.9%	15.5%	14.2%	1.2	-2.9	5.3	-2.3	4.7
Unplanned readmission rate, 90-day PDP	877	880	26.3%	27.2%	27.6%	25.9%	2.7	-2.4	7.9	-1.6	7.0
All-cause mortality rate, 30-day PDP	874	868	8.0%	5.9%	8.4%	5.6%	0.7	-2.2	3.6	-1.7	3.1
All-cause mortality rate, 90-day PDP	871	866	16.4%	12.6%	15.5%	15.3%	-3.6	-7.5	0.3	-6.9	-0.4
HHA ADL, improved bathing	139	129	55.5%	61.9%	54.7%	53.6%	7.5	-5.9	20.9	-3.7	18.8
HHA ADL, improved ambulation	139	129	56.7%	57.0%	45.6%	54.9%	-9.0	-22.0	4.0	-19.9	1.9
HHA ADL, improved upper-body dressing	139	129	61.1%	64.2%	59.9%	55.1%	7.8	-6.5	22.2	-4.2	19.9
HHA ADL, improved lower-body dressing	139	129	58.7%	63.6%	59.4%	57.5%	6.8	-7.7	21.2	-5.4	18.9
HHA ADL, improved bed transferring	139	129	48.6%	47.2%	41.3%	45.7%	-5.7	-19.5	8.0	-17.3	5.8
SNF ADL, improved long-form (overall) function	218	157	52.4%	49.7%	58.3%	54.5%	1.1	-9.8	11.9	-8.1	10.2
SNF ADL, improved early-loss (self-care) function	218	158	36.8%	27.3%	37.2%	30.9%	-3.3	-15.8	9.2	-13.8	7.2
SNF ADL, improved mid-loss (mobility) function	218	157	45.0%	49.4%	54.0%	45.5%	13.0	-0.1	26.1	2.0	24.0

[1] Dependent on having at least one day or visit in the given setting

Exhibit O.24: Cellulitis Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,130	2,123	$21,733	$20,305	$21,415	$19,979	$9.2*	-$1,333	$1,351	-$1,117	$1,136
Total amount included in the bundle definition, 90 day episodes	2,130	2,123	$20,444	$19,240	$20,207	$18,998	$6	-$1,324	$1,335	-$1,110	$1,121
Total amount not included the bundle, 90 day episodes	2,130	2,123	$1,235	$1,291	$1,223	$1,158	$121	-$160	$402	-$114	$357
Allowed payment amount for Part B services, 30 days pre-bundle	2,130	2,123	$1,312	$1,531	$1,434	$1,456	$197	$60	$335	$82	$313
Total allowed payment amount, 30 days post-bundle	1,570	1,559	$3,573	$3,153	$3,392	$3,233	-$260	-$865	$345	-$768	$248
Total allowed payment amount, 90 days post-bundle	1,155	1,147	$10,411	$9,755	$10,722	$9,902	$164	-$1,429	$1,757	-$1,173	$1,501
Total allowed payment amount, 120 days post-bundle	843	860	$13,188	$13,275	$13,460	$12,228	$1,320	-$1,087	$3,727	-$700	$3,340
Total allowed payment amount, 180 days post-bundle	772	790	$17,960	$18,703	$19,123	$16,907	$2,959	-$64	$5,982	$422	$5,496
Inpatient anchor stay standardized allowed amount	2,170	2,171	$5,620	$5,326	$5,616	$5,340	-$18	-$66	$30	-$58	$22
Readmissions standardized allowed amount, 90-day PDP	2,170	2,171	$3,472	$3,378	$3,559	$3,162	$303	-$316	$921	-$216	$821
SNF standardized allowed amount, 90-day PDP	2,170	2,171	$4,550	$4,152	$4,609	$4,569	-$357	-$1,158	$444	-$1,030	$315
HHA standardized allowed amount, 90-day PDP	2,170	2,171	$1,384	$1,417	$1,529	$1,374	$188	$20	$357	$47	$330
Therapy standardized allowed amount, 90-day PDP	2,130	2,123	$110	$110	$130	$87	$43	$3	$82	$9	$76
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,130	2,123	$423	$398	$424	$394	$5	-$36	$47	-$30	$41
Procedures standardized allowed amount, 90-day PDP	2,130	2,123	$347	$329	$354	$316	$21	-$42	$83	-$32	$73
Evaluation and management standardized allowed amount, 90-day PDP	2,130	2,123	$1,481	$1,360	$1,489	$1,413	-$44	-$182	$93	-$160	$71

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	2,130	2,123	$696	$870	$785	$924	$35	-$147	$218	-$117	$188
Other non-institutional services standardized allowed amount, 90-day PDP	2,130	2,123	$461	$461	$469	$487	-$17	-$122	$87	-$105	$70
Anchor inpatient length of stay	2,190	2,189	5.2	4.9	5.0	4.9	-0.1	-0.4	0.1	-0.3	0.1
Number of institutional PAC days, 90-day PDP[1]	627	546	34.2	31.7	35.2	33.8	-1.1	-4.9	2.7	-4.3	2.1
Number of SNF days, 90-day PDP[1]	581	505	35.1	32.2	36.0	33.3	-0.2	-4.2	3.7	-3.6	3.1
Number of HHA visits, 90-day PDP[1]	899	836	19.6	20.1	21.5	21.7	0.4	-1.7	2.4	-1.3	2.0
Patients discharged to PAC	2,189	2,188	51.1%	49.5%	49.0%	48.1%	-0.6	-4.3	3.0	-3.7	2.4
Patients discharged to institutional PAC (of those who received PAC)	1,102	1,027	47.2%	45.4%	40.9%	43.1%	-3.9	-10.0	2.2	-9.1	1.2
Emergency department use, 30-day PDP	2,160	2,159	11.7%	10.0%	10.9%	12.2%	-2.9*	-5.3	-0.5	-4.9	-0.9
Emergency department use, 90-day PDP	2,140	2,141	22.1%	21.8%	22.2%	24.0%	-2.2	-4.9	0.5	-4.5	0.1
Unplanned readmission rate, 30-day PDP	2,160	2,159	11.8%	11.4%	11.2%	11.1%	-0.4	-3.0	2.3	-2.6	1.8
Unplanned readmission rate, 90-day PDP	2,140	2,141	24.6%	23.5%	25.4%	23.5%	0.9*	-3.0	4.8	-2.3	4.2
All-cause mortality rate, 30-day PDP	2,147	2,145	2.5%	2.3%	2.1%	1.8%	0.1	-1.1	1.3	-0.9	1.1
All-cause mortality rate, 90-day PDP	2,127	2,127	6.1%	5.9%	5.9%	4.7%	1.1	-0.7	2.9	-0.5	2.6
HHA ADL, improved bathing	401	425	58.7%	59.4%	59.5%	59.9%	0.3	-8.3	8.8	-6.9	7.4
HHA ADL, improved ambulation	401	425	54.0%	53.4%	53.7%	54.2%	-1.1	-9.9	7.8	-8.5	6.4
HHA ADL, improved upper-body dressing	401	425	66.6%	66.4%	70.2%	62.9%	7.1	-1.2	15.4	0.1	14.0
HHA ADL, improved lower-body dressing	401	425	62.2%	66.4%	67.9%	65.3%	6.7	-0.3	13.8	0.8	12.7
HHA ADL, improved bed transferring	401	425	52.1%	52.3%	56.2%	52.9%	3.6	-4.2	11.3	-2.9	10.1
SNF ADL, improved long-form (overall) function	397	344	59.1%	61.1%	57.3%	57.3%	2.1	-7.6	11.7	-6.0	10.1
SNF ADL, improved early-loss (self-care) function	397	344	36.7%	38.9%	36.4%	39.5%	-0.8	-10.8	9.1	-9.2	7.5
SNF ADL, improved mid-loss (mobility) function	397	344	50.9%	58.3%	52.6%	51.2%	8.8	-0.3	17.9	1.1	16.4

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit O.25: Esophagitis, Gastroenteritis and Other Digestive Disorders Episodes, Model 2 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	1,341	1,336	$17,958	$18,253	$17,409	$16,779	$925	-$488	$2,337	-$261	$2,110
Total amount included in the bundle definition, 90 day episodes	1,341	1,336	$16,738	$17,152	$16,253	$15,720	$946	-$387	$2,280	-$173	$2,065
Total amount not included the bundle, 90 day episodes	1,341	1,336	$1,277	$1,247	$1,369	$1,218	$121	-$225	$467	-$169	$412
Allowed payment amount for Part B services, 30 days pre-bundle	1,341	1,336	$1,770	$1,859	$1,853	$1,759	$184	-$9	$377	$22	$346
Total allowed payment amount, 30 days post-bundle	920	945	$2,977	$3,099	$2,883	$2,939	$67	-$575	$709	-$472	$606
Total allowed payment amount, 90 days post-bundle	656	638	$8,760	$8,950	$8,516	$7,971	$735	-$1,393	$2,863	-$1,051	$2,521
Total allowed payment amount, 120 days post-bundle	388	388	$10,537	$11,825	$11,760	$10,008	$3,040	-$528	$6,609	$45	$6,035
Total allowed payment amount, 180 days post-bundle	370	364	$15,534	$16,398	$16,380	$14,190	$3,053	-$1,752	$7,858	-$980	$7,086
Inpatient anchor stay standardized allowed amount	1,370	1,370	$4,801	$4,655	$4,853	$4,676	$30	-$27	$87	-$18	$78
Readmissions standardized allowed amount, 90-day PDP	1,370	1,370	$3,752	$3,745	$3,632	$3,451	$175	-$559	$908	-$441	$791
SNF standardized allowed amount, 90-day PDP	1,370	1,370	$2,724	$2,990	$2,546	$2,290	$522	-$63	$1,107	$31	$1,013
HHA standardized allowed amount, 90-day PDP	1,370	1,370	$890	$886	$814	$845	-$35	-$179	$110	-$156	$87
Therapy standardized allowed amount, 90-day PDP	1,341	1,336	$86	$79	$86	$93	-$13	-$50	$24	-$44	$18
Imaging and laboratory services standardized allowed amount, 90-day PDP	1,341	1,336	$539	$538	$537	$520	$16	-$45	$77	-$35	$67
Procedures standardized allowed amount, 90-day PDP	1,341	1,336	$425	$419	$439	$375	$59	-$27	$145	-$13	$131
Evaluation and management standardized allowed amount, 90-day PDP	1,341	1,336	$1,345	$1,435	$1,236	$1,223	$103	-$43	$249	-$19	$226

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD Estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	1,341	1,336	$863	$1,042	$902	$999	$81	-$138	$299	-$102	$264
Other non-institutional services standardized allowed amount, 90-day PDP	1,341	1,336	$455	$468	$477	$454	$36	-$48	$119	-$34	$106
Anchor inpatient length of stay	1,379	1,379	4.2	4.1	4.1	4.0	0.0	-0.2	0.3	-0.1	0.2
Number of institutional PAC days, 90-day PDP[1]	290	231	30.4	28.5	33.4	28.1	3.4	-1.1	7.9	-0.4	7.2
Number of SNF days, 90-day PDP[1]	265	199	31.1	29.5	34.6	28.6	4.3	-0.5	9.1	0.3	8.4
Number of HHA visits, 90-day PDP[1]	399	353	16.3	15.8	17.5	18.4	-1.3	-3.9	1.2	-3.5	0.8
Patients discharged to PAC	1,379	1,379	31.9%	31.5%	27.1%	29.6%	-2.7	-6.4	0.9	-5.8	0.3
Patients discharged to institutional PAC (of those who received PAC)	461	396	41.9%	41.5%	41.0%	41.8%	-1.3	-8.9	6.4	-7.7	5.2
Emergency department use, 30-day PDP	1,366	1,366	12.6%	15.5%	12.2%	12.5%	2.6	-0.2	5.4	0.2	5.0
Emergency department use, 90-day PDP	1,358	1,357	24.7%	28.8%	24.3%	25.7%	2.7	-1.4	6.9	-0.7	6.2
Unplanned readmission rate, 30-day PDP	1,366	1,366	13.2%	15.0%	13.0%	13.4%	1.4	-1.8	4.6	-1.3	4.1
Unplanned readmission rate, 90-day PDP	1,358	1,357	25.6%	26.0%	24.4%	24.4%	0.3*	-3.6	4.2	-3.0	3.5
All-cause mortality rate, 30-day PDP	1,359	1,362	2.6%	2.3%	2.2%	2.5%	-0.6	-2.0	0.8	-1.7	0.6
All-cause mortality rate, 90-day PDP	1,351	1,353	6.4%	6.0%	5.2%	5.4%	-0.6	-2.8	1.7	-2.4	1.3
HHA ADL, improved bathing	160	156	60.6%	66.0%	58.9%	56.1%	8.2	-3.9	20.2	-1.9	18.3
HHA ADL, improved ambulation	160	156	53.9%	67.8%	51.0%	54.2%	10.8	-1.7	23.2	0.3	21.2
HHA ADL, improved upper-body dressing	160	156	66.9%	71.9%	66.1%	63.7%	7.5	-4.2	19.1	-2.3	17.2
HHA ADL, improved lower-body dressing	160	156	67.3%	70.3%	65.6%	65.5%	3.2	-9.0	15.4	-7.0	13.4
HHA ADL, improved bed transferring	160	156	55.7%	64.9%	52.9%	55.5%	6.6	-4.6	17.9	-2.8	16.0
SNF ADL, improved long-form (overall) function	158	128	50.8%	53.5%	55.1%	58.2%	-0.3	-16.9	16.2	-14.2	13.6
SNF ADL, improved early-loss (self-care) function	158	128	33.8%	32.6%	40.2%	44.0%	-5.0	-20.9	10.9	-18.3	8.3
SNF ADL, improved mid-loss (mobility) function	158	128	46.9%	50.6%	52.5%	56.8%	-0.7	-15.8	14.5	-13.4	12.0

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Appendix P: Beneficiary Survey Results

Exhibit P.1 lists the beneficiary survey outcome measures and how they are defined and map to the survey instrument.

Exhibit P.1: Beneficiary survey outcome measure definitions and mapping to survey questions

Measures		Survey questions	Response if Indicator=1	Response if Indicator=0
Functional Change Measures	Improvement in bathing, dressing, using the toilet, or eating	Q2, Q11	Functional improvement or maintain the best possible level	All other responses
	Decline in bathing, dressing, using the toilet, or eating	Q2, Q11	Functional decline or maintain the worst possible level	All other responses
	Improvement in planning regular tasks	Q3, Q12	Functional improvement or maintain the best possible level	All other responses
	Decline in planning regular tasks	Q3, Q12	Functional decline or maintain the worst possible level	All other responses
	Improvement in need for mobility device (less likely to use mobility device)	Q4, Q13	Functional improvement or maintain the best possible level	All other responses
	Decline in use of mobility device (more likely to use mobility device)	Q4, Q13	Functional decline or maintain the worst possible level	All other responses
	Improvement in walking without rest	Q5, Q14	Functional improvement or maintain the best possible level	All other responses
	Decline in walking without rest	Q5, Q14	Functional decline or maintain the worst possible level	All other responses
	Improvement in using stairs	Q6, Q15	Functional improvement or maintain the best possible level	All other responses
	Decline in using stairs	Q6, Q15	Functional decline or maintain the worst possible level	All other responses
	Improvement in physical/emotional problems limiting social activities (less likely to have problems)	Q7, Q16	Functional improvement or maintain the best possible level	All other responses
	Decline in physical/emotional problems limiting social activities (more likely to have problems)	Q7, Q16	Functional decline or maintain the worst possible level	All other responses
	Improvement in pain limiting regular activities (less likely to have pain)	Q8, Q17	Functional improvement or maintain the best possible level	All other responses
	Decline in pain limiting regular activities (more likely to have pain)	Q8, Q17	Functional decline or maintain the worst possible level	All other responses

Measures		Survey questions	Response if Indicator=1	Response if Indicator=0
Health Status Measures	Composite depression binary indicator	Q9, Q10	PHQ-2 score>=3	PHQ-2 score<3
	Self-reported physical health binary indicator	Q18	Excellent/very good/good	Fair/poor
	Self-reported mental health binary indicator	Q19	Excellent/very good/good	Fair/poor
Healthcare Experience Measures	Never received conflicting advice	Q20	Never	Sometimes/Usually/Always
	Always received appropriate care	Q21	Always	Never/ Sometimes/Usually
	Staff always used patient's preferred language	Q23	Always	Never/ Sometimes/Usually
	Discharged at right time	Q24	Yes	discharged too early/discharged too late
	Patient's preferences considered when deciding services needed after discharge	Q25	Agree/strongly agree	Strongly Disagree/Disagree
	Understand care of self	Q27	Agree/strongly agree	Strongly Disagree/Disagree
	Medication instructions clearly explained	Q28	Agree/strongly agree	Strongly Disagree/Disagree
	Follow-up treatment clearly explained	Q29	Agree/strongly agree	Strongly Disagree/Disagree
	Able to manage health needs	Q30	Agree/strongly agree	Strongly Disagree/Disagree
	Satisfaction with recovery	Q31	Extremely satisfied/quite a bit satisfied	Not at all satisfied/Slightly satisfied/Moderately satisfied

Exhibits P.2-P.31 show beneficiary survey outcome estimates from Waves 2-5.

Exhibit P.2: Risk-Adjusted Rates of Functional Change Measures for Model 2 Acute Care Hospital - Cardiac Arrhythmia

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in bathing, dressing, using the toilet, or eating	Wave 5	284	291	75.4	75.7	-0.3 [-5.9, 5.4]
Decline in bathing, dressing, using the toilet, or eating	Wave 5	284	291	9.9	13.7	-3.8 [-8.8, 1.3]
Improvement in planning regular tasks	Wave 5	286	298	62.5	55.2	7.3 [0.6, 13.9]
Decline in planning regular tasks	Wave 5	286	298	22.8	27.4	-4.6 [-11.6, 2.3]
Improvement in need for mobility device	Wave 5	290	297	58.8	52.4	6.4 [0.4, 12.4]
Decline in use of mobility device	Wave 5	290	297	27.6	37.1	-9.6 [-16.0, -3.1]
Improvement in walking without rest	Wave 5	289	301	42.2	40.5	1.7 [-4.7, 8.1]
Decline in walking without rest	Wave 5	289	301	23.7	26.7	-3.0 [-10.0, 3.9]
Improvement in using stairs	Wave 5	283	290	42.3	42.8	-0.5 [-7.6, 6.5]
Decline in using stairs	Wave 5	283	290	27.2	30.8	-3.6 [-10.4, 3.1]
Improvement in physical/emotional problems limiting social activities	Wave 5	286	290	57.6	49.3	8.3 [0.9, 15.7]
Decline in physical/emotional problems limiting social activities	Wave 5	286	290	17.8	31.8	-14.0 [-21.3, -6.7]
Improvement in pain limiting regular activities	Wave 5	287	292	54.7	46.8	8.0 [0.9, 15.1]
Decline in pain limiting regular activities	Wave 5	287	292	18.6	26.3	-7.7 [-14.8, -0.6]

*95% confidence interval of the treatment effect reported in brackets

Exhibit P.3: Risk-Adjusted Rates of Health Status Measures for Model 2 Acute Care Hospital - Cardiac Arrhythmia

Health Status Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Composite depression binary indicator†	Wave 5	293	290	18.4	22.2	-3.8 [-10.4, 2.7]
Self-reported physical health binary indicator‡	Wave 5	294	304	58.2	53.7	4.5 [-2.9, 11.8]
Self-reported mental health binary indicator‡	Wave 5	293	306	82.0	80.0	1.9 [-4.6, 8.4]

*95% confidence interval of the treatment effect reported in brackets
†The composite depression indicator is a binary measure equal to one when respondents reported a score of 3 or more on the Patient Health Questionnaire-2 (PHQ-2) and otherwise equals zero.
‡ The self-reported physical and mental health are binary measures equal one when respondents reported that their health was excellent, very good or good, and equal zero when respondents reported fair or poor health.

Exhibit P.4: Risk-Adjusted Rates of Healthcare Experience Measures for Model 2 Acute Care Hospital - Cardiac Arrhythmia

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Never received conflicting advice	Wave 5	293	303	73.9	74.4	-0.4 [-7.9, 7.0]
Always received appropriate care	Wave 5	296	301	59.1	60.7	-1.6 [-9.9, 6.8]
Staff always used patient's preferred language	Wave 5	298	306	91.8	91.6	0.2 [-4.9, 5.2]
Discharged at right time	Wave 5	294	302	87.3	89.5	-2.2 [-7.9, 3.5]
Patient's preferences considered when deciding services needed after discharge†	Wave 5	236	251	92.2	89.8	2.4 [-3.0, 7.8]
Understand care of self†	Wave 5	251	262	92.7	93.8	-1.1 [-5.7, 3.6]
Medication instructions clearly explained†	Wave 5	261	262	95.0	95.9	-0.9 [-4.7, 3.0]
Follow-up treatment clearly explained†	Wave 5	254	264	94.8	94.5	0.4 [-3.3, 4.0]
Able to manage health needs†	Wave 5	257	260	95.9	95.0	0.9 [-2.7, 4.5]
Satisfaction with recovery‡	Wave 5	281	287	62.3	66.8	-4.5 [-12.6, 3.6]

*95% confidence interval of the treatment effect reported in brackets
†Measure reflects that respondents either agreed or strongly agreed with this statement.
‡ Measure reflects that respondents were either quite a bit satisfied or extremely satisfied with their recovery.

Exhibit P.5: Risk-Adjusted Rates of Functional Change Measures for Model 2 Acute Care Hospital - Congestive Heart Failure

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in bathing, dressing, using the toilet, or eating	Wave 4	356	376	62.6	62.4	0.2 [-5.4, 5.9]
	Wave 5	318	311	60.7	59.3	1.4 [-5.1, 7.9]
Decline in bathing, dressing, using the toilet, or eating	Wave 4	356	376	16.8	17.5	-0.7 [-5.9, 4.6]
	Wave 5	318	311	22.6	21.4	1.2 [-4.8, 7.2]
Improvement in planning regular tasks	Wave 4	361	385	51.4	46.6	4.8 [-1.4, 11.1]
	Wave 5	322	316	43.5	41.4	2.0 [-4.9, 8.9]
Decline in planning regular tasks	Wave 4	361	385	28.8	29.4	-0.6 [-6.8, 5.6]
	Wave 5	322	316	32.7	34.7	-2.0 [-9.0, 5.0]
Improvement in need for mobility device	Wave 4	360	382	37.9	34.0	3.9 [-1.3, 9.0]
	Wave 5	325	314	32.3	38.1	-5.8 [-11.1, -0.6]
Decline in use of mobility device	Wave 4	360	382	47.1	48.6	-1.5 [-7.3, 4.4]
	Wave 5	325	314	53.8	44.8	9.0 [2.9, 15.1]
Improvement in walking without rest	Wave 4	365	380	27.5	26.1	1.4 [-4.5, 7.3]
	Wave 5	316	312	22.8	26.1	-3.3 [-9.7, 3.0]
Decline in walking without rest	Wave 4	365	380	36.0	35.5	0.5 [-5.8, 6.8]
	Wave 5	316	312	37.4	38.1	-0.7 [-7.6, 6.1]
Improvement in using stairs	Wave 4	342	371	28.5	25.7	2.8 [-3.3, 8.9]
	Wave 5	312	302	28.6	27.2	1.4 [-5.5, 8.4]
Decline in using stairs	Wave 4	342	371	41.4	44.4	-3.0 [-8.9, 2.8]
	Wave 5	312	302	44.0	45.1	-1.1 [-7.6, 5.4]
Improvement in physical/emotional problems limiting social activities	Wave 4	349	374	47.7	50.8	-3.1 [-10.2, 4.0]
	Wave 5	317	309	47.6	44.5	3.1 [-4.7, 10.8]
Decline in physical/emotional problems limiting social activities	Wave 4	349	374	27.5	25.3	2.2 [-4.3, 8.7]
	Wave 5	317	309	29.0	31.2	-2.2 [-9.3, 5.0]
Improvement in pain limiting regular activities	Wave 4	348	378	43.9	46.3	-2.3 [-9.3, 4.7]
	Wave 5	321	317	46.0	45.6	0.5 [-7.4, 8.3]
Decline in pain limiting regular activities	Wave 4	348	378	24.8	18.4	6.4 [0.6, 12.1]
	Wave 5	321	317	23.4	28.6	-5.2 [-11.9, 1.5]

*95% confidence interval of the treatment effect reported in brackets.

Exhibit P.6: Risk-Adjusted Rates of Health Status Measures for Model 2 Acute Care Hospital - Congestive Heart Failure

Health Status Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Composite depression binary indicator†	Wave 4	344	377	24.6	23.4	1.2 [-4.9, 7.3]
	Wave 5	323	315	29.2	26.8	2.4 [-4.3, 9.1]
Self-reported physical health binary indicator‡	Wave 4	370	387	33.0	35.4	-2.5 [-8.6, 3.6]
	Wave 5	331	325	36.0	35.4	0.6 [-6.6, 7.8]
Self-reported mental health binary indicator‡	Wave 4	370	390	74.3	70.5	3.8 [-2.6, 10.2]
	Wave 5	334	324	73.1	73.7	-0.6 [-7.1, 5.9]

*95% confidence interval of the treatment effect reported in brackets

†The composite depression indicator is a binary measure equal to one when respondents reported a score of 3 or more on the Patient Health Questionnaire-2 (PHQ-2) and otherwise equals zero.

‡ The self-reported physical and mental health are binary measures equal one when respondents reported that their health was excellent, very good or good, and equal zero when respondents reported fair or poor health.

Exhibit P.7: Risk-Adjusted Rates of Healthcare Experience Measures for Model 2 Acute Care Hospital – Congestive Heart Failure

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Never received conflicting advice	Wave 4	358	372	63.3	65.4	-2.1 [-9.1, 4.9]
	Wave 5	333	326	65.4	58.5	6.9 [-0.7, 14.6]
Always received appropriate care	Wave 4	364	374	56.1	52.7	3.5 [-3.9, 10.8]
	Wave 5	337	324	55.3	54.6	0.7 [-7.5, 8.8]
Staff always used patient's preferred language	Wave 4	358	383	90.9	88.2	2.8 [-1.2, 6.7]
	Wave 5	342	331	90.6	89.6	1.0 [-3.7, 5.6]
Discharged at right time	Wave 4	356	377	85.9	85.4	0.5 [-4.8, 5.7]
	Wave 5	333	324	85.2	86.5	-1.3 [-6.8, 4.1]
Patient's preferences considered when deciding services needed after discharge†	Wave 4	308	327	92.8	92.3	0.4 [-3.6, 4.4]
	Wave 5	293	284	89.7	91.5	-1.8 [-7.1, 3.4]
Understand care of self†	Wave 4	323	318	95.2	96.8	-1.6 [-4.6, 1.3]
	Wave 5	286	285	92.8	95.3	-2.5 [-6.5, 1.6]
Medication instructions clearly explained†	Wave 4	315	314	95.4	95.4	0.1 [-3.3, 3.4]
	Wave 5	282	282	92.3	95.0	-2.7 [-7.0, 1.7]
Follow-up treatment clearly explained†	Wave 4	299	298	95.4	96.5	-1.1 [-4.2, 2.0]
	Wave 5	274	276	93.4	92.4	1.1 [-3.4, 5.5]
Able to manage health needs†	Wave 4	313	309	96.7	96.3	0.4 [-2.6, 3.4]
	Wave 5	282	278	94.3	93.7	0.6 [-3.2, 4.4]
Satisfaction with recovery ‡	Wave 4	341	356	61.7	60.6	1.2 [-5.9, 8.2]
	Wave 5	303	303	61.4	60.4	1.0 [-7.0, 9.0]

*95% confidence interval of the treatment effect reported in brackets

†Measure reflects that respondents either agreed or strongly agreed with this statement.

‡ Measure reflects that respondents were either quite a bit satisfied or extremely satisfied with their recovery.

Exhibit P.8: Risk-Adjusted Rates of Functional Change Measures for Model 2 Acute Care Hospital – Chronic Obstructive Pulmonary Disease, Bronchitis, and Asthma

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in bathing, dressing, using the toilet, or eating	Wave 4	280	293	72.0	68.5	3.5 [-2.6, 9.6]
	Wave 5	346	331	65.0	70.0	-5.0 [-11.3, 1.4]
Decline in bathing, dressing, using the toilet, or eating	Wave 4	280	293	13.0	12.6	0.4 [-4.7, 5.5]
	Wave 5	346	331	18.3	10.3	8.0 [3.0, 13.0]
Improvement in planning regular tasks	Wave 4	285	305	50.4	51.4	-1.0 [-8.0, 6.0]
	Wave 5	351	329	52.6	52.4	0.2 [-6.7, 7.1]
Decline in planning regular tasks	Wave 4	285	305	24.6	24.3	0.3 [-6.2, 6.8]
	Wave 5	351	329	23.5	20.6	2.9 [-3.2, 9.0]
Improvement in need for mobility device	Wave 4	281	299	45.6	45.2	0.5 [-4.6, 5.5]
	Wave 5	347	336	45.7	44.8	0.9 [-3.9, 5.7]
Decline in use of mobility device	Wave 4	281	299	33.3	33.5	-0.2 [-6.2, 5.8]
	Wave 5	347	336	34.0	37.3	-3.4 [-8.8, 2.1]
Improvement in walking without rest	Wave 4	280	296	30.4	28.1	2.3 [-4.3, 8.9]
	Wave 5	347	331	33.5	29.4	4.1 [-2.4, 10.5]
Decline in walking without rest	Wave 4	280	296	29.8	32.7	-2.9 [-9.5, 3.7]
	Wave 5	347	331	26.1	27.5	-1.4 [-7.9, 5.1]
Improvement in using stairs	Wave 4	278	290	27.6	25.1	2.5 [-4.1, 9.1]
	Wave 5	336	331	30.7	31.8	-1.1 [-7.6, 5.4]
Decline in using stairs	Wave 4	278	290	37.7	38.0	-0.3 [-6.9, 6.3]
	Wave 5	336	331	34.2	37.2	-3.0 [-9.2, 3.2]
Improvement in physical/emotional problems limiting social activities	Wave 4	278	294	52.4	46.9	5.5 [-2.3, 13.3]
	Wave 5	348	334	49.0	44.9	4.1 [-3.4, 11.6]
Decline in physical/emotional problems limiting social activities	Wave 4	278	294	25.4	21.5	3.8 [-3.0, 10.7]
	Wave 5	348	334	25.6	26.5	-0.8 [-7.7, 6.0]
Improvement in pain limiting regular activities	Wave 4	281	299	45.5	48.8	-3.2 [-10.7, 4.2]
	Wave 5	351	335	48.9	40.8	8.0 [0.7, 15.4]
Decline in pain limiting regular activities	Wave 4	281	299	21.7	21.6	0.0 [-6.4, 6.5]
	Wave 5	351	335	22.6	28.8	-6.2 [-12.8, 0.4]

*95% confidence interval of the treatment effect reported in brackets

Exhibit P.9: Risk-Adjusted Rates of Health Status Measures for Model 2 Acute Care Hospital – Chronic Obstructive Pulmonary Disease, Bronchitis, and Asthma

Health Status Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Composite depression binary indicator†	Wave 4	279	303	29.4	29.0	0.4 [-6.5, 7.3]
	Wave 5	349	335	28.4	29.7	-1.3 [-8.2, 5.5]
Self-reported physical health binary indicator‡	Wave 4	288	311	39.0	35.5	3.5 [-3.6, 10.6]
	Wave 5	356	349	32.8	36.6	-3.8 [-10.8, 3.1]
Self-reported mental health binary indicator‡	Wave 4	289	310	73.3	73.6	-0.3 [-7.1, 6.4]
	Wave 5	357	348	75.6	70.8	4.9 [-2.1, 11.8]

*95% confidence interval of the treatment effect reported in brackets

†The composite depression indicator is a binary measure equal to one when respondents reported a score of 3 or more on the Patient Health Questionnaire-2 (PHQ-2) and otherwise equals zero.

‡ The self-reported physical and mental health are binary measures equal one when respondents reported that their health was excellent, very good or good, and equal zero when respondents reported fair or poor health.

Exhibit P.10: Risk-Adjusted Rates of Healthcare Experience Measures for Model 2 Acute Care Hospital – Chronic Obstructive Pulmonary Disease, Bronchitis, and Asthma

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Never received conflicting advice	Wave 4	276	305	70.3	65.3	5.0 [-2.9, 12.9]
	Wave 5	356	347	67.3	66.9	0.4 [-6.9, 7.7]
Always received appropriate care	Wave 4	281	304	57.4	58.8	-1.4 [-9.5, 6.8]
	Wave 5	354	350	55.7	58.6	-2.9 [-10.7, 4.8]
Staff always used patient's preferred language	Wave 4	286	308	91.8	93.6	-1.7 [-5.5, 2.0]
	Wave 5	358	351	92.6	90.8	1.8 [-2.4, 6.0]
Discharged at right time	Wave 4	282	303	85.0	88.0	-3.0 [-8.8, 2.8]
	Wave 5	353	346	87.4	87.7	-0.2 [-5.7, 5.3]
Patient's preferences considered when deciding services needed after discharge†	Wave 4	244	257	91.3	91.7	-0.5 [-5.7, 4.8]
	Wave 5	285	292	90.7	89.0	1.7 [-3.8, 7.2]
Understand care of self†	Wave 4	248	265	96.7	94.1	2.6 [-0.8, 6.0]
	Wave 5	313	305	96.0	95.0	1.0 [-2.7, 4.7]
Medication instructions clearly explained†	Wave 4	252	263	91.8	94.0	-2.1 [-6.8, 2.5]
	Wave 5	304	300	94.9	92.7	2.1 [-2.2, 6.4]
Follow-up treatment clearly explained†	Wave 4	245	251	95.6	93.8	1.9 [-2.3, 6.0]
	Wave 5	309	305	96.0	93.3	2.7 [-1.3, 6.7]
Able to manage health needs†	Wave 4	253	256	95.3	95.2	0.1 [-3.6, 3.8]
	Wave 5	313	300	94.9	93.8	1.0 [-2.9, 5.0]
Satisfaction with recovery ‡	Wave 4	270	282	62.7	66.8	-4.1 [-12.1, 3.9]
	Wave 5	338	325	62.8	57.1	5.8 [-2.2, 13.8]

*95% confidence interval of the treatment effect reported in brackets
†Measure reflects that respondents either agreed or strongly agreed with this statement.
‡ Measure reflects that respondents were either quite a bit satisfied or extremely satisfied with their recovery.

Exhibit P.11: Risk-Adjusted Rates of Functional Change Measures for Model 2 Acute Care Hospital – Major Joint Replacement of the Lower Extremity

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in bathing, dressing, using the toilet, or eating	Wave 2	353	373	85.0	84.5	0.5 [-4.3, 5.2]
	Wave 3	353	346	85.5	82.9	2.6 [-2.3, 7.6]
	Wave 4	360	346	84.3	85.6	-1.3 [-6.3, 3.7]
	Wave 5	360	377	92.4	84.0	8.4 [3.9, 12.9]
Decline in bathing, dressing, using the toilet, or eating	Wave 2	353	373	8.2	8.4	-0.1 [-3.9, 3.7]
	Wave 3	353	346	6.9	9.3	-2.4 [-6.4, 1.6]
	Wave 4	360	346	7.8	8.8	-1.0 [-5.3, 3.3]
	Wave 5	360	377	3.7	9.5	-5.8 [-9.5, -2.2]
Improvement in planning regular tasks	Wave 2	355	377	76.0	80.0	-4.0 [-9.3, 1.4]
	Wave 3	359	351	79.0	76.7	2.3 [-3.3, 7.9]
	Wave 4	362	349	75.9	73.0	2.9 [-3.2, 9.0]
	Wave 5	364	377	80.0	76.0	4.1 [-1.2, 9.3]
Decline in planning regular tasks	Wave 2	355	377	13.7	9.5	4.2 [-0.1, 8.5]
	Wave 3	359	351	9.6	11.6	-2.0 [-6.5, 2.5]
	Wave 4	362	349	11.0	12.0	-1.0 [-5.7, 3.7]
	Wave 5	364	377	7.3	11.7	-4.4 [-8.4, -0.5]
Improvement in need for mobility device	Wave 2	354	373	60.8	63.5	-2.7 [-9.2, 3.8]
	Wave 3	356	350	62.7	62.6	0.1 [-6.7, 6.9]
	Wave 4	361	347	63.5	61.6	1.9 [-4.9, 8.8]
	Wave 5	364	379	64.1	66.1	-2.0 [-8.2, 4.2]
Decline in use of mobility device	Wave 2	354	373	26.7	24.2	2.5 [-3.3, 8.3]
	Wave 3	356	350	25.0	24.6	0.3 [-5.8, 6.4]
	Wave 4	361	347	24.2	28.5	-4.3 [-10.9, 2.3]
	Wave 5	364	379	23.5	22.9	0.7 [-4.8, 6.2]

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in walking without rest	Wave 2	351	374	65.7	57.5	8.2 [1.6, 14.7]
	Wave 3	357	351	70.1	66.8	3.3 [-3.4, 10.0]
	Wave 4	358	344	61.7	57.5	4.2 [-2.7, 11.1]
	Wave 5	363	379	67.9	62.6	5.3 [-1.3, 12.0]
Decline in walking without rest	Wave 2	351	374	14.4	15.7	-1.3 [-6.1, 3.5]
	Wave 3	357	351	14.5	16.0	-1.5 [-7.1, 4.1]
	Wave 4	358	344	18.2	19.4	-1.2 [-6.8, 4.5]
	Wave 5	363	379	11.4	14.3	-2.9 [-7.7, 1.9]
Improvement in using stairs	Wave 2	353	366	65.4	57.9	7.5 [0.9, 14.0]
	Wave 3	354	339	64.1	60.0	4.0 [-2.6, 10.7]
	Wave 4	358	344	65.2	57.3	7.9 [1.2, 14.7]
	Wave 5	358	365	63.6	62.6	1.1 [-5.6, 7.8]
Decline in using stairs	Wave 2	353	366	15.4	16.7	-1.3 [-6.0, 3.4]
	Wave 3	354	339	13.5	16.1	-2.6 [-7.5, 2.3]
	Wave 4	358	344	15.6	18.6	-3.0 [-8.1, 2.1]
	Wave 5	358	365	13.7	12.5	1.2 [-3.4, 5.7]
Improvement in physical/emotional problems limiting social activities	Wave 2	348	372	75.8	72.0	3.8 [-2.4, 10.0]
	Wave 3	359	351	74.7	74.7	0.0 [-6.3, 6.2]
	Wave 4	361	345	76.5	69.4	7.1 [0.7, 13.5]
	Wave 5	360	377	79.9	73.3	6.5 [0.6, 12.5]
Decline in physical/emotional problems limiting social activities	Wave 2	348	372	10.1	12.4	-2.3 [-6.7, 2.0]
	Wave 3	359	351	11.4	11.9	-0.5 [-5.1, 4.2]
	Wave 4	361	345	14.0	15.3	-1.3 [-6.6, 4.0]
	Wave 5	360	377	10.5	10.5	0.0 [-4.5, 4.5]
Improvement in pain limiting regular activities	Wave 2	355	378	81.9	77.9	4.0 [-1.6, 9.7]
	Wave 3	360	353	78.6	74.9	3.7 [-2.1, 9.5]
	Wave 4	365	347	80.6	74.1	6.6 [0.6, 12.5]
	Wave 5	364	381	81.5	78.8	2.8 [-2.8, 8.4]

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Decline in pain limiting regular activities	Wave 2	355	378	7.0	8.5	-1.5 [-5.4, 2.5]
	Wave 3	360	353	7.5	10.9	-3.4 [-7.3, 0.5]
	Wave 4	365	347	7.8	14.1	-6.3 [-11.2, -1.3]
	Wave 5	364	381	9.8	7.7	2.2 [-1.8, 6.1]

*95% confidence interval of the treatment effect reported in brackets

Exhibit P.12: Risk-Adjusted Rates of Health Status Measures for Model 2 Acute Care Hospital – Major Joint Replacement of the Lower Extremity

Health Status Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Composite depression binary indicator†	Wave 2	340	356	11.2	9.5	1.7 [-2.5, 5.8]
	Wave 3	356	346	12.5	15.3	-2.8 [-8.1, 2.5]
	Wave 4	360	349	12.5	17.6	-5.0 [-10.5, 0.4]
	Wave 5	365	379	8.0	12.0	-4.0 [-8.3, 0.4]
Self-reported physical health binary indicator‡	Wave 2	360	381	82.6	82.7	-0.2 [-5.3, 5.0]
	Wave 3	364	355	81.7	80.3	1.4 [-3.8, 6.6]
	Wave 4	368	350	81.1	74.8	6.4 [0.5, 12.3]
	Wave 5	367	382	87.2	83.5	3.7 [-0.9, 8.4]
Self-reported mental health binary indicator‡	Wave 2	359	381	90.9	90.2	0.6 [-3.4, 4.7]
	Wave 3	364	355	89.7	89.0	0.7 [-3.5, 4.9]
	Wave 4	368	351	92.4	88.6	3.8 [-0.4, 8.1]
	Wave 5	365	383	93.0	92.6	0.4 [-3.2, 4.0]

*95% confidence interval of the treatment effect reported in brackets
†The composite depression indicator is a binary measure equal to one when respondents reported a score of 3 or more on the Patient Health Questionnaire-2 (PHQ-2) and otherwise equals zero.
‡ The self-reported physical and mental health are binary measures equal one when respondents reported that their health was excellent, very good or good, and equal zero when respondents reported fair or poor health.

Exhibit P.13: Risk-Adjusted Rates of Healthcare Experience Measures for Model 2 Acute Care Hospital – Major Joint Replacement of the Lower Extremity

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Never received conflicting advice	Wave 2	357	379	81.1	83.1	-1.9 [-7.5, 3.7]
	Wave 3	358	352	82.5	81.3	1.3 [-4.7, 7.2]
	Wave 4	357	345	85.1	78.6	6.5 [0.4, 12.6]
	Wave 5	367	377	83.8	82.4	1.5 [-3.9, 6.8]
Always received appropriate care	Wave 2	358	378	67.8	70.0	-2.3 [-9.0, 4.5]
	Wave 3	358	353	74.2	71.5	2.7 [-4.0, 9.4]
	Wave 4	360	345	68.1	71.5	-3.4 [-10.5, 3.8]
	Wave 5	368	383	75.2	73.1	2.1 [-4.5, 8.8]
Staff always used patient's preferred language	Wave 2	355	379	94.3	96.6	-2.3 [-5.4, 0.7]
	Wave 3	357	351	96.5	96.8	-0.4 [-2.5, 1.7]
	Wave 4	359	346	97.0	95.1	1.9 [-0.3, 4.1]
	Wave 5	371	382	98.0	95.7	2.4 [-0.4, 5.1]
Discharged at right time	Wave 2	358	377	89.9	93.3	-3.4 [-7.5, 0.6]
	Wave 3	357	353	91.9	93.6	-1.7 [-5.7, 2.3]
	Wave 4	358	343	94.0	95.2	-1.2 [-4.7, 2.3]
	Wave 5	367	383	93.4	94.8	-1.5 [-5.2, 2.2]
Patient's preferences considered when deciding services needed after discharge†	Wave 2	334	354	95.9	95.0	0.8 [-2.4, 4.1]
	Wave 3	334	324	94.9	94.0	1.0 [-3.0, 4.9]
	Wave 4	336	328	95.5	94.2	1.3 [-2.1, 4.7]
	Wave 5	353	361	95.5	96.0	-0.5 [-3.7, 2.7]
Understand care of self†	Wave 2	342	357	96.5	96.6	-0.1 [-2.9, 2.6]
	Wave 3	346	339	95.8	96.2	-0.4 [-3.4, 2.6]
	Wave 4	340	324	96.8	96.9	-0.2 [-2.6, 2.3]
	Wave 5	354	371	96.8	97.2	-0.4 [-3.1, 2.3]

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Medication instructions clearly explained†	Wave 2	330	350	95.1	96.0	-0.9 [-4.1, 2.2]
	Wave 3	343	334	94.5	96.7	-2.2 [-5.4, 1.1]
	Wave 4	331	312	97.4	96.9	0.5 [-2.1, 3.0]
	Wave 5	342	354	96.3	95.1	1.2 [-1.9, 4.3]
Follow-up treatment clearly explained†	Wave 2	332	341	96.9	99.7	-2.8 [-4.7, -0.8]
	Wave 3	331	326	95.1	96.0	-0.9 [-4.2, 2.5]
	Wave 4	327	317	97.7	97.5	0.2 [-2.1, 2.5]
	Wave 5	344	358	95.4	97.6	-2.2 [-5.1, 0.6]
Able to manage health needs†	Wave 2	331	352	99.7	98.6	1.0 [-0.3, 2.4]
	Wave 3	334	331	96.8	96.1	0.7 [-2.3, 3.6]
	Wave 4	331	318	99.2	97.7	1.5 [-0.4, 3.3]
	Wave 5	338	364	97.7	97.2	0.5 [-2.2, 3.2]
Satisfaction with recovery ‡	Wave 2	341	363	82.7	82.9	-0.2 [-5.9, 5.6]
	Wave 3	334	339	82.0	81.1	0.9 [-5.0, 6.8]
	Wave 4	346	323	80.2	78.5	1.7 [-4.8, 8.2]
	Wave 5	349	370	82.2	83.9	-1.7 [-7.6, 4.1]

*95% confidence interval of the treatment effect reported in brackets
†Measure reflects that respondents either agreed or strongly agreed with this statement.
‡ Measure reflects that respondents were either quite a bit satisfied or extremely satisfied with their recovery.

Exhibit P.14: Risk-Adjusted Rates of Functional Change Measures for Model 2 Acute Care Hospital – Pneumonia

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in bathing, dressing, using the toilet, or eating	Wave 4	350	316	60.0	63.9	-3.9 [-9.6, 1.8]
	Wave 5	309	345	64.9	61.7	3.2 [-2.4, 8.8]
Decline in bathing, dressing, using the toilet, or eating	Wave 4	350	316	20.2	14.1	6.1 [1.4, 10.7]
	Wave 5	309	345	17.7	21.6	-3.9 [-9.3, 1.5]
Improvement in planning regular tasks	Wave 4	351	319	49.5	50.4	-0.9 [-7.3, 5.6]
	Wave 5	306	340	53.6	47.0	6.5 [0.3, 12.8]
Decline in planning regular tasks	Wave 4	351	319	29.9	28.7	1.2 [-4.8, 7.1]
	Wave 5	306	340	30.3	34.2	-3.9 [-10.0, 2.2]
Improvement in need for mobility device	Wave 4	355	323	42.9	42.8	0.1 [-4.6, 4.7]
	Wave 5	307	345	40.8	41.0	-0.2 [-5.6, 5.3]
Decline in use of mobility device	Wave 4	355	323	42.5	42.0	0.5 [-4.6, 5.6]
	Wave 5	307	345	45.2	43.9	1.3 [-4.5, 7.2]
Improvement in walking without rest	Wave 4	350	319	37.8	35.6	2.3 [-3.8, 8.3]
	Wave 5	305	341	29.4	29.1	0.4 [-5.7, 6.4]
Decline in walking without rest	Wave 4	350	319	32.3	31.3	1.1 [-4.8, 6.9]
	Wave 5	305	341	35.3	36.6	-1.3 [-7.5, 4.9]
Improvement in using stairs	Wave 4	345	305	34.7	31.4	3.3 [-3.0, 9.5]
	Wave 5	300	330	29.4	30.8	-1.4 [-7.5, 4.7]
Decline in using stairs	Wave 4	345	305	37.1	38.0	-0.9 [-6.4, 4.6]
	Wave 5	300	330	44.8	41.3	3.5 [-2.2, 9.1]
Improvement in physical/emotional problems limiting social activities	Wave 4	352	310	50.6	53.2	-2.6 [-9.9, 4.8]
	Wave 5	307	341	48.0	48.9	-0.9 [-8.6, 6.9]
Decline in physical/emotional problems limiting social activities	Wave 4	352	310	27.3	23.9	3.4 [-3.0, 9.8]
	Wave 5	307	341	31.8	29.9	1.8 [-5.6, 9.2]
Improvement in pain limiting regular activities	Wave 4	353	308	53.9	48.0	5.9 [-1.0, 12.8]
	Wave 5	306	343	44.7	46.6	-1.8 [-9.4, 5.7]
Decline in pain limiting regular activities	Wave 4	353	308	18.6	23.5	-5.0 [-11.0, 1.0]
	Wave 5	306	343	27.4	20.3	7.1 [0.2, 14.0]

*95% confidence interval of the treatment effect reported in brackets

Exhibit P.15: Risk-Adjusted Rates of Health Status Measures for Model 2 Acute Care Hospital – Pneumonia

Health Status Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Composite depression binary indicator†	Wave 4	351	312	32.2	26.7	5.5 [-1.0, 12.0]
	Wave 5	307	340	24.2	25.8	-1.6 [-8.0, 4.9]
Self-reported physical health binary indicator‡	Wave 4	366	328	41.5	44.4	-2.9 [-9.4, 3.6]
	Wave 5	320	349	41.0	41.8	-0.8 [-7.6, 6.1]
Self-reported mental health binary indicator‡	Wave 4	365	328	70.5	73.6	-3.1 [-9.4, 3.2]
	Wave 5	318	349	74.7	71.0	3.7 [-3.0, 10.4]

*95% confidence interval of the treatment effect reported in brackets
†The composite depression indicator is a binary measure equal to one when respondents reported a score of 3 or more on the Patient Health Questionnaire-2 (PHQ-2) and otherwise equals zero.
‡ The self-reported physical and mental health are binary measures equal one when respondents reported that their health was excellent, very good or good, and equal zero when respondents reported fair or poor health.

Exhibit P.16: Risk-Adjusted Rates of Healthcare Experience Measures for Model 2 Acute Care Hospital – Pneumonia

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Never received conflicting advice	Wave 4	354	319	71.7	68.8	2.9 [-4.3, 10.1]
	Wave 5	323	349	66.0	70.6	-4.6 [-11.9, 2.6]
Always received appropriate care	Wave 4	358	323	55.4	59.3	-3.9 [-11.5, 3.6]
	Wave 5	321	356	53.1	54.2	-1.2 [-9.1, 6.8]
Staff always used patient's preferred language	Wave 4	361	324	91.3	92.0	-0.7 [-4.5, 3.2]
	Wave 5	326	355	91.6	92.4	-0.8 [-5.1, 3.4]
Discharged at right time	Wave 4	356	325	85.5	89.2	-3.7 [-9.0, 1.5]
	Wave 5	324	349	89.4	84.7	4.7 [-0.5, 9.8]
Patient's preferences considered when deciding services needed after discharge†	Wave 4	307	265	88.6	93.2	-4.6 [-9.5, 0.2]
	Wave 5	284	304	93.2	90.9	2.3 [-2.0, 6.7]
Understand care of self†	Wave 4	302	263	93.3	97.6	-4.2 [-7.7, -0.8]
	Wave 5	280	304	95.1	95.6	-0.6 [-4.2, 3.1]
Medication instructions clearly explained†	Wave 4	300	267	93.5	96.3	-2.9 [-6.3, 0.6]
	Wave 5	266	299	92.0	94.3	-2.3 [-6.8, 2.1]
Follow-up treatment clearly explained†	Wave 4	294	262	93.7	94.2	-0.6 [-4.7, 3.5]
	Wave 5	270	296	93.1	92.7	0.5 [-3.9, 4.9]
Able to manage health needs†	Wave 4	307	264	95.8	94.2	1.5 [-2.1, 5.2]
	Wave 5	271	298	96.8	96.6	0.2 [-2.9, 3.3]
Satisfaction with recovery ‡	Wave 4	342	312	70.2	70.7	-0.5 [-7.6, 6.5]
	Wave 5	300	330	63.4	65.0	-1.6 [-9.4, 6.2]

*95% confidence interval of the treatment effect reported in brackets
†Measure reflects that respondents either agreed or strongly agreed with this statement.
‡ Measure reflects that respondents were either quite a bit satisfied or extremely satisfied with their recovery.

Exhibit P.17: Risk-Adjusted Rates of Functional Change Measures for Model 2 Acute Care Hospital – Sepsis

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in bathing, dressing, using the toilet, or eating	Wave 4	322	341	52.2	61.3	-9.0 [-15.5, -2.5]
	Wave 5	370	393	61.0	57.6	3.4 [-3.2, 9.9]
Decline in bathing, dressing, using the toilet, or eating	Wave 4	322	341	30.6	25.3	5.3 [-0.8, 11.4]
	Wave 5	370	393	21.6	26.1	-4.6 [-10.3, 1.2]
Improvement in planning regular tasks	Wave 4	333	346	44.8	47.5	-2.7 [-9.3, 3.9]
	Wave 5	371	407	47.5	48.6	-1.1 [-7.3, 5.1]
Decline in planning regular tasks	Wave 4	333	346	35.8	34.1	1.7 [-4.6, 8.1]
	Wave 5	371	407	34.2	34.1	0.1 [-6.2, 6.4]
Improvement in need for mobility device	Wave 4	331	345	40.1	43.0	-2.9 [-8.3, 2.4]
	Wave 5	373	400	40.5	40.1	0.3 [-4.8, 5.4]
Decline in use of mobility device	Wave 4	331	345	48.9	43.9	5.0 [-0.8, 10.8]
	Wave 5	373	400	45.7	46.5	-0.8 [-6.3, 4.6]
Improvement in walking without rest	Wave 4	320	336	30.4	35.3	-5.0 [-11.5, 1.6]
	Wave 5	365	396	32.5	33.0	-0.5 [-6.5, 5.6]
Decline in walking without rest	Wave 4	320	336	41.5	34.9	6.7 [0.0, 13.3]
	Wave 5	365	396	38.8	37.6	1.2 [-5.0, 7.4]
Improvement in using stairs	Wave 4	315	340	25.7	33.5	-7.8 [-13.9, -1.6]
	Wave 5	367	380	31.4	32.0	-0.6 [-6.8, 5.7]
Decline in using stairs	Wave 4	315	340	45.2	41.4	3.8 [-2.4, 10.0]
	Wave 5	367	380	45.6	44.9	0.6 [-5.7, 6.9]
Improvement in physical/emotional problems limiting social activities	Wave 4	325	339	44.3	46.8	-2.5 [-9.8, 4.8]
	Wave 5	359	397	46.9	48.3	-1.4 [-9.0, 6.1]
Decline in physical/emotional problems limiting social activities	Wave 4	325	339	34.3	32.0	2.2 [-4.9, 9.4]
	Wave 5	359	397	30.0	29.5	0.6 [-6.1, 7.2]
Improvement in pain limiting regular activities	Wave 4	324	342	42.6	44.0	-1.4 [-8.5, 5.7]
	Wave 5	369	398	40.9	47.2	-6.2 [-13.3, 0.8]
Decline in pain limiting regular activities	Wave 4	324	342	29.5	29.3	0.2 [-6.5, 6.9]
	Wave 5	369	398	27.1	27.3	-0.2 [-6.8, 6.4]

*95% confidence interval of the treatment effect reported in brackets

Exhibit P.18: Risk-Adjusted Rates of Health Status Measures for Model 2 Acute Care Hospital – Sepsis

Health Status Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Composite depression binary indicator†	Wave 4	330	340	31.9	26.1	5.8 [-1.0, 12.5]
	Wave 5	378	402	30.8	24.5	6.3 [0.1, 12.5]
Self-reported physical health binary indicator‡	Wave 4	339	355	39.5	40.4	-1.0 [-7.7, 5.7]
	Wave 5	386	412	44.7	46.5	-1.8 [-8.3, 4.7]
Self-reported mental health binary indicator‡	Wave 4	338	359	70.5	70.8	-0.3 [-7.0, 6.3]
	Wave 5	385	415	69.4	73.5	-4.1 [-10.7, 2.5]

*95% confidence interval of the treatment effect reported in brackets

†The composite depression indicator is a binary measure equal to one when respondents reported a score of 3 or more on the Patient Health Questionnaire-2 (PHQ-2) and otherwise equals zero.

‡ The self-reported physical and mental health are binary measures equal one when respondents reported that their health was excellent, very good or good, and equal zero when respondents reported fair or poor health.

Exhibit P.19: Risk-Adjusted Rates of Healthcare Experience Measures for Model 2 Acute Care Hospital – Sepsis

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Never received conflicting advice	Wave 4	327	351	59.7	67.7	-8.0 [-15.1, -0.9]
	Wave 5	382	411	63.8	61.3	2.5 [-4.8, 9.9]
Always received appropriate care	Wave 4	329	353	51.4	59.8	-8.4 [-16.0, -0.9]
	Wave 5	388	415	51.9	54.4	-2.5 [-10.1, 5.1]
Staff always used patient's preferred language	Wave 4	332	357	87.1	91.2	-4.1 [-8.0, -0.1]
	Wave 5	392	421	86.9	90.5	-3.5 [-8.2, 1.1]
Discharged at right time	Wave 4	326	348	84.9	85.8	-0.9 [-6.4, 4.5]
	Wave 5	386	411	83.2	87.4	-4.2 [-9.6, 1.2]
Patient's preferences considered when deciding services needed after discharge†	Wave 4	282	313	89.9	93.7	-3.8 [-8.2, 0.7]
	Wave 5	325	360	90.6	90.2	0.4 [-4.2, 5.0]
Understand care of self†	Wave 4	270	296	95.2	96.5	-1.3 [-4.5, 1.9]
	Wave 5	334	346	92.6	93.3	-0.8 [-5.0, 3.4]
Medication instructions clearly explained†	Wave 4	262	282	92.1	93.7	-1.6 [-5.9, 2.7]
	Wave 5	318	329	90.8	93.2	-2.4 [-7.2, 2.3]
Follow-up treatment clearly explained†	Wave 4	262	282	94.9	92.2	2.7 [-1.4, 6.8]
	Wave 5	321	331	92.3	91.8	0.5 [-4.2, 5.2]
Able to manage health needs†	Wave 4	264	286	95.0	95.9	-0.8 [-4.6, 2.9]
	Wave 5	325	330	92.1	94.5	-2.4 [-6.6, 1.7]
Satisfaction with recovery ‡	Wave 4	310	342	60.6	64.9	-4.3 [-11.5, 2.9]
	Wave 5	377	393	62.5	66.7	-4.2 [-11.5, 3.2]

*95% confidence interval of the treatment effect reported in brackets
†Measure reflects that respondents either agreed or strongly agreed with this statement.
‡ Measure reflects that respondents were either quite a bit satisfied or extremely satisfied with their recovery.

Exhibit P.20: Risk-Adjusted Rates of Functional Change Measures for Model 2 Acute Care Hospital – Stroke

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in bathing, dressing, using the toilet, or eating	Wave 5	368	383	56.2	61.1	-4.9 [-11.1, 1.4]
Decline in bathing, dressing, using the toilet, or eating	Wave 5	368	383	28.2	29.5	-1.3 [-7.9, 5.3]
Improvement in planning regular tasks	Wave 5	376	390	44.3	44.3	0.0 [-6.6, 6.6]
Decline in planning regular tasks	Wave 5	376	390	42.0	44.5	-2.5 [-9.5, 4.5]
Improvement in need for mobility device	Wave 5	378	393	44.2	42.5	1.8 [-4.2, 7.7]
Decline in use of mobility device	Wave 5	378	393	46.1	48.4	-2.3 [-9.0, 4.3]
Improvement in walking without rest	Wave 5	376	384	34.5	32.2	2.2 [-3.7, 8.1]
Decline in walking without rest	Wave 5	376	384	39.5	44.7	-5.2 [-12.2, 1.9]
Improvement in using stairs	Wave 5	355	378	35.1	34.9	0.2 [-6.0, 6.3]
Decline in using stairs	Wave 5	355	378	44.1	44.9	-0.8 [-7.8, 6.2]
Improvement in physical/emotional problems limiting social activities	Wave 5	373	385	41.3	42.6	-1.3 [-8.8, 6.1]
Decline in physical/emotional problems limiting social activities	Wave 5	373	385	41.2	41.4	-0.2 [-7.7, 7.4]
Improvement in pain limiting regular activities	Wave 5	373	385	48.5	43.8	4.6 [-2.1, 11.4]
Decline in pain limiting regular activities	Wave 5	373	385	28.9	30.7	-1.8 [-8.9, 5.2]

*95% confidence interval of the treatment effect reported in brackets

Exhibit P.21: Risk-Adjusted Rates of Health Status Measures for Model 2 Acute Care Hospital – Stroke

Health Status Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Composite depression binary indicator†	Wave 5	363	385	25.2	29.0	-3.7 [-10.4, 3.0]
Self-reported physical health binary indicator‡	Wave 5	387	397	51.3	49.4	1.9 [-4.8, 8.6]
Self-reported mental health binary indicator‡	Wave 5	387	397	67.1	67.3	-0.2 [-7.1, 6.6]

*95% confidence interval of the treatment effect reported in brackets

†The composite depression indicator is a binary measure equal to one when respondents reported a score of 3 or more on the Patient Health Questionnaire-2 (PHQ-2) and otherwise equals zero.

‡ The self-reported physical and mental health are binary measures equal one when respondents reported that their health was excellent, very good or good, and equal zero when respondents reported fair or poor health.

Exhibit P.22: Risk-Adjusted Rates of Healthcare Experience Measures for Model 2 Acute Care Hospital – Stroke

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Never received conflicting advice	Wave 5	384	397	63.3	68.8	-5.5 [-12.5, 1.6]
Always received appropriate care	Wave 5	384	389	54.7	57.7	-3.0 [-10.6, 4.7]
Staff always used patient's preferred language	Wave 5	388	399	87.7	90.2	-2.5 [-7.2, 2.3]
Discharged at right time	Wave 5	383	392	84.2	91.2	-7.0 [-12.0, -2.0]
Patient preferences considered when deciding services needed after discharge†	Wave 5	350	361	94.1	91.9	2.2 [-2.3, 6.7]
Understand care of self†	Wave 5	337	337	93.7	96.2	-2.5 [-6.4, 1.3]
Medication instructions clearly explained†	Wave 5	327	333	93.6	92.3	1.2 [-3.6, 6.1]
Follow-up treatment clearly explained†	Wave 5	315	322	92.4	93.9	-1.6 [-6.2, 3.0]
Able to manage health needs†	Wave 5	323	330	96.3	96.7	-0.4 [-4.5, 3.7]
Satisfaction with recovery‡	Wave 5	359	378	65.2	66.7	-1.4 [-8.6, 5.8]

*95% confidence interval of the treatment effect reported in brackets
†Measure reflects that respondents either agreed or strongly agreed with this statement.
‡ Measure reflects that respondents were either quite a bit satisfied or extremely satisfied with their recovery.

Exhibit P.23: Risk-Adjusted Rates of Functional Change Measures for Model 2 Acute Care Hospital – Urinary Tract Infection

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in bathing, dressing, using the toilet, or eating	Wave 5	275	281	44.2	48.5	-4.3 [-10.9, 2.3]
Decline in bathing, dressing, using the toilet, or eating	Wave 5	275	281	33.1	31.0	2.1 [-5.0, 9.1]
Improvement in planning regular tasks	Wave 5	276	286	36.4	35.0	1.4 [-5.5, 8.2]
Decline in planning regular tasks	Wave 5	276	286	42.7	43.0	-0.3 [-7.3, 6.8]
Improvement in need for mobility device	Wave 5	276	282	31.6	31.3	0.3 [-5.1, 5.7]
Decline in use of mobility device	Wave 5	276	282	55.3	55.7	-0.4 [-6.3, 5.4]
Improvement in walking without rest	Wave 5	272	277	24.8	23.0	1.8 [-4.8, 8.3]
Decline in walking without rest	Wave 5	272	277	46.6	47.2	-0.7 [-7.7, 6.3]
Improvement in using stairs	Wave 5	275	268	26.8	20.1	6.7 [1.1, 12.4]
Decline in using stairs	Wave 5	275	268	52.5	55.8	-3.3 [-9.5, 2.9]
Improvement in physical/emotional problems limiting social activities	Wave 5	276	278	49.2	43.2	6.0 [-2.8, 14.8]
Decline in physical/emotional problems limiting social activities	Wave 5	276	278	30.9	34.2	-3.3 [-11.5, 5.0]
Improvement in pain limiting regular activities	Wave 5	278	275	42.6	39.1	3.4 [-5.2, 12.1]
Decline in pain limiting regular activities	Wave 5	278	275	27.1	28.4	-1.3 [-8.9, 6.4]

*95% confidence interval of the treatment effect reported in brackets

Exhibit P.24: Risk-Adjusted Rates of Health Status Measures for Model 2 Acute Care Hospital – Urinary Tract Infection

Health Status Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Composite depression binary indicator†	Wave 5	281	276	33.2	34.7	-1.5 [-9.5, 6.6]
Self-reported physical health binary indicator‡	Wave 5	285	292	41.4	37.8	3.6 [-3.7, 11.0]
Self-reported mental health binary indicator‡	Wave 5	287	291	61.2	56.9	4.4 [-3.8, 12.5]

*95% confidence interval of the treatment effect reported in brackets
†The composite depression indicator is a binary measure equal to one when respondents reported a score of 3 or more on the Patient Health Questionnaire-2 (PHQ-2) and otherwise equals zero.
‡ The self-reported physical and mental health are binary measures equal one when respondents reported that their health was excellent, very good or good, and equal zero when respondents reported fair or poor health.

Exhibit P.25: Risk-Adjusted Rates of Healthcare Experience Measures for Model 2 Acute Care Hospital – Urinary Tract Infection

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Never received conflicting advice	Wave 5	284	286	60.7	62.9	-2.2 [-10.6, 6.2]
Always received appropriate care	Wave 5	284	288	50.9	47.3	3.5 [-5.2, 12.3]
Staff always used patient's preferred language	Wave 5	288	292	88.1	86.1	2.0 [-4.1, 8.1]
Discharged at right time	Wave 5	282	287	84.2	85.4	-1.2 [-7.5, 5.1]
Patient's preferences considered when deciding services needed after discharge†	Wave 5	239	244	93.5	86.0	7.5 [1.6, 13.4]
Understand care of self†	Wave 5	218	215	94.8	94.5	0.3 [-4.2, 4.7]
Medication instructions clearly explained†	Wave 5	207	214	92.0	90.7	1.3 [-4.1, 6.7]
Follow-up treatment clearly explained†	Wave 5	205	219	94.8	91.1	3.7 [-1.2, 8.6]
Able to manage health needs†	Wave 5	218	224	95.6	93.6	2.0 [-3.0, 7.0]
Satisfaction with recovery‡	Wave 5	271	274	61.2	59.3	1.9 [-7.0, 10.9]

*95% confidence interval of the treatment effect reported in brackets
†Measure reflects that respondents either agreed or strongly agreed with this statement.
‡ Measure reflects that respondents were either quite a bit satisfied or extremely satisfied with their recovery.

Exhibit P.26: Risk-Adjusted Rates of Functional Change Measures for Model 3 Skilled Nursing Facility – Major Joint Replacement of Lower Extremity

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in bathing, dressing, using the toilet, or eating	Wave 5	389	392	77.3	75.9	1.4 [-3.8, 6.5]
Decline in bathing, dressing, using the toilet, or eating	Wave 5	389	392	10.1	12.0	-1.9 [-6.2, 2.4]
Improvement in planning regular tasks	Wave 5	398	395	66.8	68.1	-1.2 [-7.1, 4.6]
Decline in planning regular tasks	Wave 5	398	395	18.8	18.0	0.8 [-4.4, 5.9]
Improvement in need for mobility device	Wave 5	400	391	45.3	44.8	0.5 [-6.0, 7.0]
Decline in use of mobility device	Wave 5	400	391	41.7	38.5	3.2 [-3.1, 9.6]
Improvement in walking without rest	Wave 5	387	393	49.9	47.6	2.3 [-4.1, 8.7]
Decline in walking without rest	Wave 5	387	393	23.4	28.7	-5.4 [-10.7, 0.0]
Improvement in using stairs	Wave 5	377	379	53.8	50.9	2.9 [-3.6, 9.3]
Decline in using stairs	Wave 5	377	379	26.2	28.8	-2.6 [-7.8, 2.7]
Improvement in physical/emotional problems limiting social activities	Wave 5	394	393	65.8	63.5	2.3 [-3.6, 8.2]
Decline in physical/emotional problems limiting social activities	Wave 5	394	393	17.0	17.8	-0.8 [-6.1, 4.4]
Improvement in pain limiting regular activities	Wave 5	392	393	70.4	71.5	-1.1 [-7.0, 4.7]
Decline in pain limiting regular activities	Wave 5	392	393	13.0	14.5	-1.4 [-6.3, 3.5]

*95% confidence interval of the treatment effect reported in brackets

Exhibit P.27: Risk-Adjusted Rates of Health Status Measures for Model 3 Skilled Nursing Facility – Major Joint Replacement of Lower Extremity

Health Status Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Composite depression binary indicator†	Wave 5	392	391	15.1	16.9	-1.8 [-7.1, 3.5]
Self-reported physical health binary indicator‡	Wave 5	401	401	74.5	71.7	2.8 [-3.1, 8.7]
Self-reported mental health binary indicator‡	Wave 5	403	401	85.5	84.2	1.3 [-3.8, 6.5]

*95% confidence interval of the treatment effect reported in brackets
†The composite depression indicator is a binary measure equal to one when respondents reported a score of 3 or more on the Patient Health Questionnaire-2 (PHQ-2) and otherwise equals zero.
‡ The self-reported physical and mental health are binary measures equal one when respondents reported that their health was excellent, very good or good, and equal zero when respondents reported fair or poor health.

Exhibit P.28: Risk-Adjusted Rates of Healthcare Experience Measures for Model 3 Skilled Nursing Facility – Major Joint Replacement of Lower Extremity

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Never received conflicting advice	Wave 5	397	400	72.2	72.3	-0.1 [-6.6, 6.5]
Always received appropriate care	Wave 5	399	401	55.2	58.0	-2.9 [-9.9, 4.2]
Staff always used patient's preferred language	Wave 5	399	397	93.8	94.3	-0.5 [-3.9, 2.9]
Discharged at right time	Wave 5	396	396	89.9	91.9	-2.0 [-6.0, 2.0]
Patient's preferences considered when deciding services needed after discharge†	Wave 5	367	371	89.2	93.8	-4.6 [-8.6, -0.5]
Understand care of self†	Wave 5	367	370	94.9	95.6	-0.7 [-3.7, 2.3]
Medication instructions clearly explained†	Wave 5	345	333	89.7	94.8	-5.1 [-9.0, -1.1]
Follow-up treatment clearly explained†	Wave 5	344	343	88.9	95.0	-6.1 [-10.1, -2.1]
Able to manage health needs†	Wave 5	357	348	97.6	96.0	1.6 [-1.3, 4.5]
Satisfaction with recovery‡	Wave 5	384	382	69.5	72.5	-3.0 [-9.6, 3.6]

*95% confidence interval of the treatment effect reported in brackets
†Measure reflects that respondents either agreed or strongly agreed with this statement.
‡ Measure reflects that respondents were either quite a bit satisfied or extremely satisfied with their recovery.

Exhibit P.29: Risk-Adjusted Rates of Functional Change Measures for Model 4

Functional Change Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Improvement in bathing, dressing, using the toilet, or eating	Wave 5	378	293	76.8	81.1	-4.3 [-12.4, 3.9]
Decline in bathing, dressing, using the toilet, or eating	Wave 5	378	293	11.5	6.8	4.7 [-0.7, 10.2]
Improvement in planning regular tasks	Wave 5	379	293	68.7	68.4	0.3 [-7.8, 8.4]
Decline in planning regular tasks	Wave 5	379	293	14.0	13.4	0.6 [-6.0, 7.2]
Improvement in need for mobility device	Wave 5	380	292	57.8	51.8	6.0 [-6.9, 18.9]
Decline in use of mobility device	Wave 5	380	292	26.3	35.8	-9.5 [-18.9, -0.1]
Improvement in walking without rest	Wave 5	381	293	60.3	51.5	8.9 [-7.1, 24.8]
Decline in walking without rest	Wave 5	381	293	19.4	21.5	-2.1 [-9.6, 5.4]
Improvement in using stairs	Wave 5	369	281	53.2	57.4	-4.2 [-13.0, 4.6]
Decline in using stairs	Wave 5	369	281	21.2	24.6	-3.4 [-10.8, 4.0]
Improvement in physical/emotional problems limiting social activities	Wave 5	378	297	68.5	68.4	0.1 [-9.4, 9.5]
Decline in physical/emotional problems limiting social activities	Wave 5	378	297	16.0	18.6	-2.6 [-10.8, 5.7]
Improvement in pain limiting regular activities	Wave 5	380	296	70.1	68.5	1.6 [-7.0, 10.2]
Decline in pain limiting regular activities	Wave 5	380	296	17.3	14.5	2.8 [-4.1, 9.7]

*95% confidence interval of the treatment effect reported in brackets

Exhibit P.30: Risk-Adjusted Rates of Health Status Measures for Model 4

Health Status Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Composite depression binary indicator†	Wave 5	382	299	17.5	15.1	2.4 [-5.5, 10.2]
Self-reported physical health binary indicator‡	Wave 5	387	301	71.0	64.3	6.6 [-1.9, 15.1]
Self-reported mental health binary indicator‡	Wave 5	385	300	86.8	85.0	1.8 [-5.9, 9.5]

*95% confidence interval of the treatment effect reported in brackets

†The composite depression indicator is a binary measure equal to one when respondents reported a score of 3 or more on the Patient Health Questionnaire-2 (PHQ-2) and otherwise equals zero.

‡ The self-reported physical and mental health are binary measures equal one when respondents reported that their health was excellent, very good or good, and equal zero when respondents reported fair or poor health.

Exhibit P.31: Risk-Adjusted Rates of Healthcare Experience Measures for Model 4

Healthcare Experience Measures	Wave	BPCI Group Sample Size	Comparison Group Sample Size	BPCI Group Rate	Comparison Group Rate	Difference in Rate* (Treatment Effect)
Never received conflicting advice	Wave 5	387	296	80.0	76.8	3.1 [-5.1, 11.4]
Always received appropriate care	Wave 5	384	299	67.5	64.2	3.3 [-6.7, 13.3]
Staff always used patient's preferred language	Wave 5	388	299	92.4	94.8	-2.4 [-6.1, 1.3]
Discharged at right time	Wave 5	389	293	88.9	89.7	-0.8 [-6.8, 5.3]
Patient's preferences considered when deciding services needed after discharge†	Wave 5	345	277	95.6	93.7	1.9 [-3.2, 6.9]
Understand care of self†	Wave 5	360	274	94.8	94.7	0.2 [-4.9, 5.2]
Medication instructions clearly explained†	Wave 5	349	267	95.5	94.6	0.9 [-3.4, 5.2]
Follow-up treatment clearly explained†	Wave 5	348	271	97.1	94.6	2.5 [-1.8, 6.8]
Able to manage health needs†	Wave 5	346	273	94.8	97.0	-2.2 [-6.1, 1.7]
Satisfaction with recovery‡	Wave 5	364	295	75.3	71.1	4.1 [-4.9, 13.2]

*95% confidence interval of the treatment effect reported in brackets
†Measure reflects that respondents either agreed or strongly agreed with this statement.
‡ Measure reflects that respondents were either quite a bit satisfied or extremely satisfied with their recovery.

Appendix Q: Impact of BPCI on Allowed Payment, Quality, and Utilization Measures, by Clinical Episode, Baseline to Intervention, Model 3 SNF

The following tables display risk-adjusted difference-in-differences results for all payment, quality, and utilization measures assessed in the OY2 Annual Report. Results are presented by EI type/clinical episode. Please observe the following abbreviations, which are used throughout the appendix:

- DiD = difference-in-differences
- LCI = lower confidence interval at the 5% and 10% level
- UCI = upper confidence interval at the 5% and 10% level
- PDP = post-qualifying hospitalization discharge period
- ADL = activities of daily living
- IP = inpatient hospitalizations
- PAC = post-acute care
- SNF = skilled nursing facility
- HHA = home health agency
- IRF = inpatient rehabilitation facility

Note that sample sizes reflect the number of episodes initiated during the intervention period that met inclusion criteria for the given outcome. Medicare payments are risk-adjusted and standardized to remove the effect of geographic differences in wages, extra amounts to account for teaching programs and other policy factors. Medicare payments are expressed in 2015 dollars, the result of adjusting actual dollar amounts based on changed in the medical component of the CPI-U. Results reflect Lewin analysis of Medicare claims, assessment, and enrollment data for episodes that began Q4 2011 through Q3 2012 (baseline) and Q4 2013 through Q3 2015 (intervention period) for BPCI episode initiators and the matched comparison providers.

Exhibit Q.1: Urinary Tract Infection Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	921	919	$39,593	$37,783	$38,264	$36,055	$399	-$1,798	$2,596	-$1,445	$2,243
Total amount included in the bundle definition, 30 day episodes	30	32	$13,555	$11,742	$14,844	$14,270	-$1,239	-$4,557	$2,080	-$4,024	$1,546
Total amount included in the bundle definition, 90 day episodes	879	875	$31,549	$29,973	$29,712	$27,670	$466	-$1,688	$2,620	-$1,342	$2,274
Total amount not included the bundle, 90 day episodes	879	875	$917	$981	$845	$1,025	-$116	-$535	$302	-$467	$235
Total allowed payment amount, 30 days pre-bundle	921	919	$14,970	$13,051	$14,208	$12,575	-$285	-$1,563	$993	-$1,358	$788
Total allowed payment amount, 30 days post-bundle	728	734	$5,161	$5,095	$5,566	$4,599	$902	-$52	$1,855	$101	$1,702
Total allowed payment amount, 90 days post-bundle	579	580	$14,328	$13,392	$14,930	$13,077	$917	-$1,728	$3,561	-$1,303	$3,136
Total allowed payment amount, 120 days post-bundle	462	467	$18,252	$17,389	$17,291	$17,147	-$718	-$4,469	$3,034	-$3,866	$2,431
Total allowed payment amount, 180 days post-bundle	458	462	$24,620	$24,661	$23,508	$24,131	-$582	-$5,323	$4,159	-$4,561	$3,397
Readmissions standardized allowed amount, 90-day PDP	931	930	$5,001	$4,533	$4,869	$4,277	$125	-$943	$1,192	-$772	$1,021
SNF standardized allowed amount, 90-day PDP	931	930	$20,767	$19,984	$19,944	$19,062	$100	-$1,504	$1,703	-$1,246	$1,446
HHA standardized allowed amount, 90-day PDP	931	930	$1,513	$1,584	$1,414	$1,430	$55	-$205	$315	-$164	$273
Therapy standardized allowed amount, 90-day PDP	921	919	$153	$109	$178	$143	-$9	-$85	$67	-$73	$54
Imaging and laboratory services standardized allowed amount, 90-day PDP	921	919	$322	$331	$319	$316	$12	-$38	$61	-$30	$53
Procedures standardized allowed amount, 90-day PDP	921	919	$234	$246	$223	$228	$7	-$62	$75	-$51	$64

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Evaluation and management standardized allowed amount, 90-day PDP	921	919	$2,174	$2,310	$2,039	$2,006	$170	-$67	$407	-$29	$369
Other institutional services standardized allowed amount, 90-day PDP	921	919	$383	$553	$401	$455	$116	-$28	$260	-$5	$237
Other non-institutional services standardized allowed amount, 90-day PDP	921	919	$798	$685	$752	$669	-$31	-$126	$65	-$111	$49
Qualifying inpatient length of stay	931	931	5.5	5.4	5.5	5.2	0.1	-0.2	0.4	-0.1	0.4
Number of institutional PAC days, 90-day PDP	931	929	39.5	38.3	39.6	37.0	1.4	-1.5	4.4	-1.0	3.9
Number of SNF days, 90-day PDP	931	929	38.8	37.9	38.9	36.4	1.6	-1.3	4.5	-0.8	4.1
Number of HHA visits, 90-day PDP[1]	448	407	17.9	18.6	18.0	18.3	0.3	-2.0	2.6	-1.7	2.3
Emergency department use, first 30 days of episode	924	927	10.1%	9.3%	9.5%	10.1%	-1.4	-5.0	2.2	-4.4	1.6
Emergency department use, first 90 days of episode	924	927	21.8%	23.3%	22.3%	23.4%	0.3*	-4.9	5.5	-4.0	4.7
Unplanned readmission rate, first 30 days of episode	924	927	18.0%	14.2%	18.0%	16.4%	-2.2	-7.0	2.6	-6.3	1.9
Unplanned readmission rate, first 90 days of episode	924	927	34.4%	31.8%	35.3%	28.1%	4.7*	-1.0	10.3	-0.1	9.4
All-cause mortality rate, first 30 days of episode	918	920	7.1%	5.2%	6.8%	5.9%	-0.9	-4.0	2.1	-3.5	1.6
All-cause mortality rate, first 90 days of episode	918	920	17.1%	14.7%	16.0%	14.7%	-1.1	-5.8	3.7	-5.0	2.9
Improved long-form (overall) ADL function	765	741	55.9%	59.5%	54.9%	53.2%	5.3	-1.6	12.2	-0.4	11.1
Improved early-loss (self-care) ADL function	776	743	33.9%	40.7%	30.2%	29.4%	7.7	0.1	15.2	1.3	14.0
Improved mid-loss (mobility) ADL function	754	742	49.9%	55.1%	46.5%	44.5%	7.2	0.1	14.4	1.2	13.3

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit Q.2: Stroke Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	657	649	$50,323	$49,999	$51,351	$49,313	$1,713	-$2,062	$5,488	-$1,455	$4,881
Total amount included in the bundle definition, 90 day episodes	640	633	$35,430	$35,231	$35,515	$34,529	$787	-$2,234	$3,809	-$1,749	$3,323
Total amount not included the bundle, 90-day episodes	640	633	$692	$829	$1,151	$627	$662	$142	$1,183	$225	$1,099
Total allowed payment amount, 30 days pre-bundle	657	649	$19,910	$18,856	$20,177	$19,280	-$157	-$2,242	$1,928	-$1,907	$1,593
Total allowed payment amount, 30 days post-bundle	538	518	$5,668	$5,314	$6,156	$5,703	$99	-$1,086	$1,284	-$896	$1,094
Total allowed payment amount, 90 days post-bundle	491	472	$15,269	$14,675	$16,015	$14,054	$1,366	-$1,826	$4,559	-$1,313	$4,046
Total allowed payment amount, 120 days post-bundle	386	371	$20,599	$20,372	$18,577	$16,032	$2,318	-$2,446	$7,082	-$1,680	$6,316
Total allowed payment amount, 180 days post-bundle	381	367	$26,374	$26,714	$23,447	$21,046	$2,740	-$3,404	$8,884	-$2,416	$7,897
Readmissions standardized allowed amount, 90-day PDP	659	659	$4,337	$5,345	$5,161	$4,299	$1,870	$579	$3,161	$786	$2,953
SNF standardized allowed amount, 90-day PDP	659	659	$24,618	$23,163	$24,286	$24,301	-$1,471	-$3,796	$855	-$3,423	$482
IRF standardized allowed amount, 90-day PDP	659	659	$3,830	$4,208	$4,255	$4,630	$2	-$1,546	$1,551	-$1,297	$1,302
HHA standardized allowed amount, 90-day PDP	659	659	$1,485	$1,656	$1,524	$1,389	$306	-$8	$619	$43	$569
Therapy standardized allowed amount, 90-day PDP	657	649	$125	$135	$160	$144	$26	-$69	$122	-$53	$106
Imaging and laboratory services standardized allowed amount, 90-day PDP	657	649	$323	$352	$341	$306	$64	$4	$124	$14	$115
Procedures standardized allowed amount, 90-day PDP	657	649	$202	$197	$267	$187	$75	-$6	$156	$7	$143

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Evaluation and management standardized allowed amount, 90-day PDP	657	649	$2,457	$2,991	$2,442	$2,474	$502	$142	$862	$200	$804
Other institutional services standardized allowed amount, 90-day PDP	657	649	$428	$457	$410	$504	-$65	-$243	$114	-$215	$85
Other non-institutional services standardized allowed amount, 90-day PDP	657	649	$744	$732	$745	$633	$99	-$12	$210	$6	$192
Anchor inpatient length of stay	659	659	6.5	6.4	6.3	6.2	0.0	-0.4	0.5	-0.3	0.4
Number of institutional PAC days, 90-day PDP	658	658	46.6	45.6	46.4	47.7	-2.2	-6.5	2.0	-5.8	1.3
Number of SNF days, 90-day PDP	658	658	43.5	42.1	43.1	44.2	-2.5	-6.4	1.4	-5.7	0.8
Number of HHA visits, 90-day PDP1	304	265	18.3	18.9	19.7	19.5	0.8	-1.9	3.5	-1.5	3.1
Emergency department use, first 30 days of episode	653	656	12.0%	14.0%	11.0%	11.4%	1.6	-2.7	5.8	-2.0	5.1
Emergency department use, first 90 days of episode	653	656	25.3%	24.7%	24.1%	23.8%	-0.3	-6.1	5.5	-5.2	4.6
Unplanned readmission rate, first 30 days of episode	653	656	17.6%	20.8%	17.5%	18.1%	2.6	-3.1	8.3	-2.2	7.4
Unplanned readmission rate, first 90 days of episode	653	656	30.3%	36.8%	31.7%	32.1%	6.1	-0.8	12.9	0.3	11.8
All-cause mortality rate, first 30 days of episode	658	653	8.7%	5.7%	11.4%	9.9%	-1.4	-5.4	2.6	-4.7	2.0
All-cause mortality rate, first 90 days of episode	658	653	19.4%	15.6%	21.0%	17.0%	0.1*	-5.1	5.3	-4.3	4.5
Improved long-form (overall) ADL function	484	544	62.8%	65.3%	58.5%	57.5%	3.6	-4.8	11.9	-3.4	10.6
Improved early-loss (self-care) ADL function	495	544	38.5%	46.6%	31.4%	35.9%	3.5	-5.9	12.9	-4.4	11.4
Improved mid-loss (mobility) ADL function	481	543	55.1%	60.0%	48.4%	49.5%	3.7	-4.7	12.1	-3.3	10.7

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit Q.3: Chronic Obstructive Pulmonary Disease, Bronchitis, Asthma Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	544	543	$41,384	$40,317	$41,605	$38,851	$1,686	-$2,017	$5,389	-$1,421	$4,794
Total amount included in the bundle definition, 90 day episodes	527	526	$31,306	$30,322	$30,114	$29,108	$22	-$3,291	$3,335	-$2,759	$2,802
Total amount not included the bundle, 90-day episodes	527	526	$542	$1,256	$1,108	$660	$1,161	$509	$1,812	$614	$1,708
Total allowed payment amount, 30 days pre-bundle	544	543	$16,705	$14,714	$16,938	$14,820	$126	-$1,824	$2,077	-$1,511	$1,763
Total allowed payment amount, 30 days post-bundle	414	438	$6,265	$5,994	$6,915	$5,406	$1,238	-$413	$2,890	-$148	$2,624
Total allowed payment amount, 90 days post-bundle	365	382	$16,753	$15,595	$17,159	$15,842	$158	-$4,026	$4,342	-$3,353	$3,670
Total allowed payment amount, 120 days post-bundle	282	296	$22,510	$19,448	$21,521	$18,606	-$147	-$6,023	$5,730	-$5,079	$4,786
Total allowed payment amount, 180 days post-bundle	275	294	$31,558	$26,402	$29,666	$26,758	-$2,248	-$9,973	$5,477	-$8,732	$4,236
Readmissions standardized allowed amount, 90-day PDP	547	547	$7,238	$7,240	$8,033	$6,643	$1,392	-$474	$3,257	-$175	$2,958
SNF standardized allowed amount, 90-day PDP	547	547	$17,463	$17,000	$16,856	$17,229	-$836	-$2,949	$1,276	-$2,609	$936
HHA standardized allowed amount, 90-day PDP	547	547	$1,720	$1,633	$1,768	$1,671	$9	-$324	$342	-$270	$289
Imaging and laboratory services standardized allowed amount, 90-day PDP	544	543	$411	$377	$405	$371	$1	-$68	$70	-$57	$59
Procedures standardized allowed amount, 90-day PDP	544	543	$253	$307	$275	$241	$87	-$15	$189	$2	$173
Evaluation and management standardized allowed amount, 90-day PDP	544	543	$2,771	$2,993	$2,836	$2,629	$429	$23	$835	$88	$770
Other institutional services standardized allowed amount, 90-day PDP	544	543	$516	$517	$490	$523	-$33	-$239	$174	-$206	$140

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other non-institutional services standardized allowed amount, 90-day PDP	544	543	$838	$784	$855	$772	$29	-$103	$161	-$82	$139
Anchor inpatient length of stay	547	547	6.6	6.5	6.3	6.5	-0.2	-0.7	0.3	-0.6	0.2
Number of institutional PAC days, 90-day PDP	546	545	34.2	33.7	32.8	33.0	-0.8	-4.6	3.1	-4.0	2.5
Number of SNF days, 90-day PDP	546	545	33.3	32.9	31.9	32.4	-0.9	-4.8	2.9	-4.1	2.3
Number of HHA visits, 90-day PDP[1]	300	280	17.8	17.6	17.8	19.0	-1.4	-4.0	1.2	-3.6	0.8
Emergency department use, first 30 days of episode	538	546	7.4%	9.8%	11.0%	12.0%	1.4	-3.7	6.4	-2.9	5.6
Emergency department use, first 90 days of episode	538	546	22.4%	24.5%	24.1%	25.2%	1.1	-6.5	8.6	-5.3	7.4
Unplanned readmission rate, first 30 days of episode	538	546	24.0%	24.2%	26.4%	24.8%	1.8	-4.9	8.6	-3.8	7.5
Unplanned readmission rate, first 90 days of episode	538	546	45.6%	46.4%	46.1%	41.8%	5.1	-2.6	12.8	-1.3	11.6
All-cause mortality rate, first 30 days of episode	542	537	6.6%	6.8%	7.9%	7.2%	1.0	-3.5	5.4	-2.8	4.7
All-cause mortality rate, first 90 days of episode	542	537	16.9%	20.4%	18.3%	14.5%	7.3	1.4	13.2	2.4	12.3
Improved long-form (overall) ADL function	441	442	65.6%	66.6%	56.9%	59.4%	-1.5	-10.3	7.3	-8.9	5.9
Improved early-loss (self-care) ADL function	447	442	44.8%	48.1%	37.0%	40.1%	0.2	-8.8	9.2	-7.4	7.8
Improved mid-loss (mobility) ADL function	441	442	58.0%	60.3%	52.1%	55.0%	-0.6	-10.8	9.6	-9.2	7.9

[1] Dependent on having at least one day or visit in the given setting

Exhibit Q.4: Major Joint Replacement-Lower Extremity Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,308	2,309	$36,711	$33,544	$35,803	$35,204	-$2,568	-$3,992	-$1,144	-$3,763	-$1,373
Total amount included in the bundle definition, 30 day episodes	122	121	$11,878	$10,726	$12,255	$12,783	-$1,681	-$3,294	-$68	-$3,034	-$327
Total amount included in the bundle definition, 60 day episodes	890	887	$15,366	$13,521	$15,219	$15,703	-$2,330	-$4,183	-$477	-$3,885	-$775
Total amount included in the bundle definition, 90 day episodes	1,298	1,301	$21,117	$18,511	$19,585	$19,857	-$2,877	-$4,548	-$1,207	-$4,279	-$1,475
Total amount not included the bundle, 60-day episodes	890	887	$222	$201	$329	$270	$38	-$256	$332	-$209	$285
Total amount not included the bundle, 90-day episodes	1,298	1,301	$383	$388	$378	$359	$24	-$163	$212	-$133	$182
Total allowed payment amount, 30 days pre-bundle	2,310	2,309	$18,458	$17,296	$18,083	$17,203	-$282	-$792	$229	-$710	$147
Total allowed payment amount, 30 days post-bundle	2,135	2,081	$2,435	$2,019	$2,256	$2,246	-$406	-$819	$6	-$753	-$60
Total allowed payment amount, 90 days post-bundle	1,496	1,472	$6,473	$5,813	$5,656	$5,587	-$592	-$1,827	$643	-$1,628	$445
Total allowed payment amount, 120 days post-bundle	1,040	1,024	$7,217	$7,055	$6,122	$6,224	-$264	-$1,982	$1,454	-$1,706	$1,178
Total allowed payment amount, 180 days post-bundle	1,032	1,021	$9,791	$9,706	$8,611	$9,198	-$672	-$2,796	$1,451	-$2,454	$1,110
Readmissions standardized allowed amount, 90-day PDP	2,318	2,321	$2,003	$1,761	$1,862	$1,855	-$235	-$680	$210	-$608	$138
SNF standardized allowed amount, 90-day PDP	2,318	2,321	$13,170	$11,035	$12,743	$12,863	-$2,255	-$3,096	-$1,413	-$2,961	-$1,548
HHA standardized allowed amount, 90-day PDP	2,318	2,321	$2,146	$2,164	$1,972	$1,991	$0	-$227	$227	-$191	$191
Therapy standardized allowed amount, 90-day PDP	2,308	2,309	$645	$594	$614	$540	$24	-$37	$85	-$28	$75

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,308	2,309	$315	$296	$298	$277	$2	-$28	$31	-$23	$26
Procedures standardized allowed amount, 90-day PDP	2,308	2,309	$295	$252	$297	$243	$10	-$39	$59	-$31	$51
Evaluation and management standardized allowed amount, 90-day PDP	2,308	2,309	$1,052	$1,138	$993	$1,088	-$9	-$126	$108	-$107	$89
Other institutional services standardized allowed amount, 90-day PDP	2,308	2,309	$312	$364	$306	$360	-$3	-$85	$80	-$72	$67
Other non-institutional services standardized allowed amount, 90-day PDP	2,308	2,309	$379	$369	$349	$344	-$4	-$72	$63	-$61	$53
Anchor inpatient length of stay	2,321	2,321	4.7	4.6	4.7	4.6	0.0	-0.1	0.0	-0.1	0.0
Number of institutional PAC days, 90-day PDP	2,317	2,320	24.4	20.6	23.8	24.1	-4.1	-5.6	-2.6	-5.4	-2.9
Number of SNF days, 90-day PDP	2,317	2,320	23.9	20.2	23.4	23.7	-4.0	-5.4	-2.6	-5.2	-2.8
Number of HHA visits, 90-day PDP[1]	1,464	1,413	15.7	17.6	15.8	16.6	1.0	0.0	2.1	0.2	1.9
Emergency department use, first 30 days of episode	2,315	2,309	7.6%	7.4%	7.3%	7.4%	-0.3	-2.3	1.7	-2.0	1.3
Emergency department use, first 90 days of episode	2,312	2,309	14.7%	15.1%	14.8%	15.4%	-0.3	-3.2	2.6	-2.7	2.2
Unplanned readmission rate, first 30 days of episode	2,315	2,309	8.1%	7.0%	7.7%	8.1%	-1.4	-3.6	0.7	-3.2	0.4
Unplanned readmission rate, first 90 days of episode	2,312	2,309	13.4%	11.7%	12.6%	13.6%	-2.7	-5.1	-0.2	-4.7	-0.6
All-cause mortality rate, first 30 days of episode	2,317	2,311	1.1%	0.4%	1.2%	0.8%	-0.3	-1.0	0.3	-0.9	0.2
All-cause mortality rate, first 90 days of episode	2,314	2,311	2.7%	1.6%	2.8%	3.0%	-1.3	-2.4	-0.1	-2.2	-0.3
Improved long-form (overall) ADL function	1,527	1,954	73.6%	69.7%	73.9%	75.1%	-5.0	-15.1	5.0	-13.4	3.4
Improved early-loss (self-care) ADL function	1,529	1,955	59.2%	52.5%	57.7%	60.3%	-9.2	-18.6	0.2	-17.1	-1.3
Improved mid-loss (mobility) ADL function	1,527	1,953	69.7%	65.2%	70.4%	70.5%	-4.6	-14.3	5.0	-12.7	3.5

[1] Dependent on having at least one day or visit in the given setting

Exhibit Q.5: Major Joint Replacement-Lower Extremity, Fracture Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	497	502	$49,248	$44,139	$48,185	$48,304	-$5,228	-$8,738	-$1,717	-$8,174	-$2,282
Total amount included in the bundle definition, 60 day episodes	149	149	$27,103	$21,755	$23,801	$24,767	-$6,314	-$12,815	$186	-$11,770	-$859
Total amount included in the bundle definition, 90 day episodes	316	318	$31,292	$26,336	$29,812	$30,275	-$5,419	-$9,462	-$1,376	-$8,812	-$2,025
Total amount not included the bundle, 90-day episodes	316	318	$507	$587	$471	$680	-$129	-$696	$437	-$605	$346
Total allowed payment amount, 30 days pre-bundle	498	502	$21,751	$20,353	$21,344	$20,264	-$318	-$1,628	$991	-$1,417	$781
Total allowed payment amount, 30 days post-bundle	444	416	$4,250	$3,380	$4,269	$4,539	-$1,140	-$2,366	$86	-$2,169	-$111
Total allowed payment amount, 90 days post-bundle	298	281	$11,443	$8,789	$11,196	$9,914	-$1,371	-$4,907	$2,164	-$4,339	$1,596
Total allowed payment amount, 120 days post-bundle	193	181	$11,614	$9,435	$13,582	$10,878	$525	-$7,196	$8,247	-$5,955	$7,006
Total allowed payment amount, 180 days post-bundle	192	181	$14,384	$12,498	$17,323	$15,722	-$286	-$9,218	$8,646	-$7,782	$7,211
Readmissions standardized allowed amount, 90-day PDP	505	506	$3,270	$3,023	$3,179	$3,538	-$606	-$1,898	$687	-$1,690	$479
SNF standardized allowed amount, 90-day PDP	505	506	$22,087	$18,065	$21,244	$21,421	-$4,199	-$6,530	-$1,867	-$6,155	-$2,242
HHA standardized allowed amount, 90-day PDP	505	506	$2,205	$2,258	$1,956	$2,063	-$54	-$390	$283	-$336	$229
Therapy standardized allowed amount, 90-day PDP	497	502	$241	$365	$181	$209	$97	-$39	$232	-$17	$210
Imaging and laboratory services standardized allowed amount, 90-day PDP	497	502	$310	$306	$289	$264	$21	-$37	$79	-$27	$69
Procedures standardized allowed amount, 90-day PDP	497	502	$260	$226	$274	$275	-$34	-$154	$85	-$135	$66

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Evaluation and management standardized allowed amount, 90-day PDP	497	502	$1,446	$1,543	$1,392	$1,636	-$147	-$470	$175	-$418	$123
Other institutional services standardized allowed amount, 90-day PDP	497	502	$301	$312	$342	$406	-$53	-$208	$101	-$183	$76
Other non-institutional services standardized allowed amount, 90-day PDP	497	502	$582	$575	$529	$526	-$4	-$127	$119	-$107	$99
Anchor inpatient length of stay	506	506	6.2	5.8	6.1	5.9	-0.2	-0.5	0.1	-0.5	0.0
Number of institutional PAC days, 90-day PDP	504	506	41.1	33.3	40.2	40.3	-7.8	-12.1	-3.5	-11.4	-4.2
Number of SNF days, 90-day PDP	504	506	40.1	32.4	39.2	39.1	-7.6	-11.7	-3.4	-11.1	-4.1
Number of HHA visits, 90-day PDP[1]	319	298	18.6	20.4	18.4	19.2	1.0	-1.6	3.5	-1.2	3.1
Emergency department use, first 30 days of episode	506	505	8.3%	8.0%	8.1%	8.2%	-0.4	-4.9	4.1	-4.2	3.3
Emergency department use, first 90 days of episode	505	505	17.9%	18.1%	18.9%	17.0%	2.1	-4.6	8.8	-3.6	7.7
Unplanned readmission rate, first 30 days of episode	506	505	13.5%	10.5%	13.5%	13.3%	-2.8	-8.6	3.0	-7.6	2.1
Unplanned readmission rate, first 90 days of episode	505	505	21.9%	18.7%	22.8%	23.2%	-3.6	-10.4	3.2	-9.3	2.1
All-cause mortality rate, first 30 days of episode	502	498	4.8%	1.2%	5.1%	2.4%	-0.8	-3.6	1.9	-3.1	1.5
All-cause mortality rate, first 90 days of episode	501	498	10.1%	5.8%	11.5%	9.0%	-1.8	-6.3	2.7	-5.6	1.9
Improved long-form (overall) ADL function	379	453	65.1%	69.7%	66.3%	69.4%	1.6	-8.1	11.3	-6.5	9.7
Improved early-loss (self-care) ADL function	381	453	45.6%	48.2%	45.3%	47.8%	0.2	-9.3	9.7	-7.8	8.2
Improved mid-loss (mobility) ADL function	379	453	63.0%	65.3%	65.3%	66.6%	1.0	-9.2	11.1	-7.5	9.5

[1] Dependent on having at least one day or visit in the given setting

Exhibit Q.6: Major Joint Replacement-Lower Extremity, Non-Fracture Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	1,811	1,807	$33,038	$30,440	$32,152	$31,304	-$1,750	-$3,071	-$430	-$2,858	-$642
Total amount included in the bundle definition, 60 day episodes	741	738	$13,166	$11,864	$13,785	$14,094	-$1,611	-$3,182	-$40	-$2,930	-$293
Total amount included in the bundle definition, 90 day episodes	982	983	$17,778	$15,944	$16,104	$16,248	-$1,978	-$3,547	-$409	-$3,295	-$661
Total amount not included the bundle, 60-day episodes	741	738	$213	$212	$292	$199	$92	-$145	$329	-$107	$291
Total amount not included the bundle, 90-day episodes	982	983	$343	$320	$350	$263	$65	-$115	$245	-$86	$217
Total allowed payment amount, 30 days pre-bundle	1,812	1,807	$17,487	$16,368	$17,123	$16,327	-$323	-$753	$108	-$684	$38
Total allowed payment amount, 30 days post-bundle	1,691	1,665	$1,956	$1,686	$1,707	$1,617	-$181	-$590	$229	-$524	$163
Total allowed payment amount, 90 days post-bundle	1,198	1,191	$5,295	$5,138	$4,342	$4,512	-$326	-$1,624	$973	-$1,416	$764
Total allowed payment amount, 120 days post-bundle	847	843	$6,517	$6,649	$5,087	$5,378	-$158	-$1,819	$1,502	-$1,552	$1,235
Total allowed payment amount, 180 days post-bundle	840	840	$9,147	$9,279	$7,290	$7,922	-$500	-$2,558	$1,557	-$2,227	$1,226
Readmissions standardized allowed amount, 90-day PDP	1,813	1,815	$1,609	$1,382	$1,472	$1,356	-$111	-$540	$319	-$471	$250
SNF standardized allowed amount, 90-day PDP	1,813	1,815	$10,552	$8,918	$10,251	$10,275	-$1,658	-$2,452	-$865	-$2,324	-$992
HHA standardized allowed amount, 90-day PDP	1,813	1,815	$2,138	$2,132	$1,976	$1,962	$8	-$254	$269	-$212	$227
Therapy standardized allowed amount, 90-day PDP	1,811	1,807	$760	$667	$743	$640	$11	-$57	$79	-$46	$68
Imaging and laboratory services standardized allowed amount, 90-day PDP	1,811	1,807	$318	$293	$301	$279	-$3	-$34	$27	-$29	$22

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Procedures standardized allowed amount, 90-day PDP	1,811	1,807	$308	$261	$300	$233	$21	-$32	$75	-$24	$66
Evaluation and management standardized allowed amount, 90-day PDP	1,811	1,807	$937	$1,027	$872	$924	$38	-$56	$132	-$41	$117
Other institutional services standardized allowed amount, 90-day PDP	1,811	1,807	$316	$379	$296	$348	$12	-$83	$107	-$67	$92
Other non-institutional services standardized allowed amount, 90-day PDP	1,811	1,807	$318	$308	$295	$291	-$6	-$76	$64	-$65	$53
Anchor inpatient length of stay	1,815	1,815	4.3	4.2	4.3	4.2	0.0	0.0	0.1	0.0	0.0
Number of institutional PAC days, 90-day PDP	1,813	1,814	19.5	16.8	19.0	19.3	-3.0	-4.4	-1.6	-4.1	-1.9
Number of SNF days, 90-day PDP	1,813	1,814	19.2	16.5	18.8	19.1	-2.9	-4.3	-1.6	-4.0	-1.8
Number of HHA visits, 90-day PDP[1]	1,145	1,115	15.0	16.7	15.1	15.8	1.1	0.1	2.1	0.2	1.9
Emergency department use, first 30 days of episode	1,809	1,804	7.5%	7.2%	7.1%	7.1%	-0.3*	-2.5	1.9	-2.2	1.6
Emergency department use, first 90 days of episode	1,807	1,804	13.9%	14.2%	13.5%	14.8%	-1.0	-4.3	2.3	-3.7	1.8
Unplanned readmission rate, first 30 days of episode	1,809	1,804	6.4%	6.0%	6.0%	6.6%	-1.0	-3.0	0.9	-2.7	0.6
Unplanned readmission rate, first 90 days of episode	1,807	1,804	10.8%	9.6%	9.5%	10.8%	-2.4	-4.9	0.0	-4.5	-0.4
All-cause mortality rate, first 30 days of episode	1,815	1,813	0.1%	0.2%	0.1%	0.4%	-0.2	-0.6	0.2	-0.6	0.1
All-cause mortality rate, first 90 days of episode	1,813	1,813	0.5%	0.4%	0.3%	1.1%	-1.0	-1.7	-0.3	-1.6	-0.4
Improved long-form (overall) ADL function	1,148	1,501	76.3%	69.7%	76.3%	77.0%	-7.3	-18.1	3.6	-16.4	1.9
Improved early-loss (self-care) ADL function	1,148	1,502	63.3%	53.9%	61.7%	64.3%	-12.0	-22.2	-1.7	-20.6	-3.4
Improved mid-loss (mobility) ADL function	1,148	1,500	71.6%	65.2%	72.0%	71.9%	-6.3	-16.6	4.0	-14.9	2.4

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit Q.7: Congestive Heart Failure Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	1,372	1,373	$42,697	$40,623	$42,204	$40,535	-$405	-$2,484	$1,674	-$2,150	$1,339
Total amount included in the bundle definition, 30 day episodes	33	34	$15,364	$13,971	$15,886	$15,767	-$1,273	-$4,871	$2,325	-$4,293	$1,746
Total amount included in the bundle definition, 60 day episodes	39	39	$25,609	$25,871	$23,561	$23,871	-$47	-$7,601	$7,506	-$6,387	$6,292
Total amount included in the bundle definition, 90 day episodes	1,301	1,300	$31,516	$29,724	$30,417	$29,450	-$825	-$2,807	$1,157	-$2,488	$838
Total amount not included the bundle, 90-day episodes	1,301	1,300	$632	$764	$887	$734	$285	-$49	$619	$5	$566
Total allowed payment amount, 30 days pre-bundle	1,373	1,373	$20,097	$18,363	$19,339	$17,595	$10	-$1,409	$1,429	-$1,181	$1,201
Total allowed payment amount, 30 days post-bundle	941	928	$5,842	$5,674	$6,579	$6,143	$268	-$794	$1,329	-$623	$1,158
Total allowed payment amount, 90 days post-bundle	783	770	$16,845	$16,494	$18,331	$16,001	$1,980	-$891	$4,850	-$430	$4,389
Total allowed payment amount, 120 days post-bundle	596	573	$22,357	$21,060	$21,591	$19,287	$1,008	-$2,873	$4,888	-$2,249	$4,265
Total allowed payment amount, 180 days post-bundle	593	571	$30,637	$28,148	$27,809	$26,416	-$1,095	-$6,010	$3,819	-$5,220	$3,030
Readmissions standardized allowed amount, 90-day PDP	1,381	1,382	$7,302	$6,931	$7,410	$6,837	$201	-$923	$1,326	-$742	$1,145
SNF standardized allowed amount, 90-day PDP	1,381	1,382	$17,642	$16,405	$17,243	$17,117	-$1,110	-$2,519	$300	-$2,293	$73
HHA standardized allowed amount, 90-day PDP	1,381	1,382	$1,573	$1,716	$1,607	$1,588	$161	-$72	$394	-$35	$357
Therapy standardized allowed amount, 90-day PDP	1,372	1,373	$138	$97	$128	$117	-$29	-$88	$30	-$79	$20
Imaging and laboratory services standardized allowed amount, 90-day PDP	1,372	1,373	$371	$355	$360	$336	$8	-$34	$50	-$27	$44

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Procedures standardized allowed amount, 90-day PDP	1,372	1,373	$281	$250	$305	$257	$17	-$53	$86	-$41	$75
Evaluation and management standardized allowed amount, 90-day PDP	1,372	1,373	$2,720	$2,770	$2,673	$2,624	$100	-$150	$349	-$110	$309
Other institutional services standardized allowed amount, 90-day PDP	1,372	1,373	$481	$524	$415	$512	-$55	-$181	$71	-$160	$51
Other non-institutional services standardized allowed amount, 90-day PDP	1,372	1,373	$823	$718	$850	$750	-$5	-$100	$90	-$85	$75
Anchor inpatient length of stay	1,382	1,382	6.8	7.0	6.8	6.9	0.1	-0.3	0.5	-0.2	0.4
Number of institutional PAC days, 90-day PDP	1,377	1,377	33.7	32.0	34.4	33.4	-0.7	-3.3	1.8	-2.9	1.4
Number of SNF days, 90-day PDP	1,377	1,377	32.9	31.2	33.7	32.9	-1.0	-3.5	1.6	-3.1	1.2
Number of HHA visits, 90-day PDP[1]	711	666	18.4	20.1	18.6	19.9	0.5	-1.7	2.6	-1.3	2.2
Emergency department use, first 30 days of episode	1,376	1,376	10.5%	10.0%	11.4%	11.5%	-0.6	-3.7	2.6	-3.2	2.1
Emergency department use, first 90 days of episode	1,375	1,376	21.4%	21.3%	22.8%	23.2%	-0.4	-4.8	4.0	-4.1	3.3
Unplanned readmission rate, first 30 days of episode	1,376	1,376	26.2%	25.5%	27.2%	24.4%	2.1	-2.9	7.0	-2.1	6.2
Unplanned readmission rate, first 90 days of episode	1,375	1,376	47.0%	46.5%	46.1%	43.8%	1.8	-3.5	7.2	-2.7	6.3
All-cause mortality rate, first 30 days of episode	1,366	1,358	12.1%	11.5%	13.5%	12.9%	0.1	-3.4	3.6	-2.8	3.0
All-cause mortality rate, first 90 days of episode	1,365	1,358	28.5%	27.2%	26.2%	27.5%	-2.6	-7.2	1.9	-6.5	1.2
Improved long-form (overall) ADL function	1,027	1,080	61.2%	65.8%	57.6%	53.5%	8.7	2.0	15.5	3.1	14.4
Improved early-loss (self-care) ADL function	1,043	1,080	39.9%	48.3%	36.9%	35.7%	9.6	3.1	16.1	4.2	15.0
Improved mid-loss (mobility) ADL function	1,018	1,080	53.8%	60.1%	49.4%	48.9%	6.9	0.1	13.7	1.2	12.6

[1] Dependent on having at least one day or visit in the given setting

Exhibit Q.8: Medical Non-Infectious Orthopedic Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	1,170	1,167	$41,604	$40,516	$41,152	$38,967	$1,097*	-$1,316	$3,510	-$928	$3,122
Total amount included in the bundle definition, 90 day episodes	1,127	1,124	$33,127	$31,656	$31,905	$30,027	$407	-$1,880	$2,693	-$1,512	$2,326
Total amount not included the bundle, 90-day episodes	1,127	1,124	$986	$949	$1,219	$1,035	$147	-$393	$688	-$306	$601
Total allowed payment amount, 30 days pre-bundle	1,171	1,167	$11,875	$11,241	$12,322	$11,909	-$221	-$1,183	$741	-$1,029	$586
Total allowed payment amount, 30 days post-bundle	1,016	996	$5,161	$4,962	$5,002	$4,678	$125	-$947	$1,197	-$775	$1,024
Total allowed payment amount, 90 days post-bundle	806	805	$14,158	$13,154	$12,457	$12,151	-$697	-$3,774	$2,380	-$3,279	$1,885
Total allowed payment amount, 120 days post-bundle	646	643	$17,011	$16,750	$14,663	$14,893	-$491	-$3,978	$2,996	-$3,417	$2,436
Total allowed payment amount, 180 days post-bundle	641	638	$22,913	$22,829	$20,273	$19,847	$341	-$3,817	$4,500	-$3,149	$3,832
Readmissions standardized allowed amount, 90-day PDP	1,179	1,180	$4,514	$4,153	$4,929	$3,745	$823	-$259	$1,906	-$85	$1,732
SNF standardized allowed amount, 90-day PDP	1,179	1,180	$23,322	$22,159	$21,973	$21,371	-$561	-$2,312	$1,190	-$2,031	$909
HHA standardized allowed amount, 90-day PDP	1,179	1,180	$1,854	$1,899	$1,892	$2,041	-$103	-$363	$156	-$321	$114
Therapy standardized allowed amount, 90-day PDP	1,170	1,167	$193	$110	$158	$119	-$44	-$114	$27	-$103	$15
Imaging and laboratory services standardized allowed amount, 90-day PDP	1,170	1,167	$373	$348	$390	$313	$52	$1	$104	$9	$96
Procedures standardized allowed amount, 90-day PDP	1,170	1,167	$425	$396	$469	$353	$88	-$6	$181	$9	$166
Evaluation and management standardized allowed amount, 90-day PDP	1,170	1,167	$2,156	$2,222	$2,095	$2,139	$22	-$188	$233	-$154	$199

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	1,170	1,167	$519	$540	$563	$587	-$4	-$181	$173	-$152	$144
Other non-institutional services standardized allowed amount, 90-day PDP	1,170	1,167	$702	$579	$664	$582	-$42	-$133	$49	-$118	$35
Anchor inpatient length of stay	1,180	1,180	5.1	4.9	5.2	5.0	0.0	-0.2	0.2	-0.2	0.2
Number of institutional PAC days, 90-day PDP	1,179	1,178	42.5	41.1	41.4	40.5	-0.5	-3.5	2.4	-3.0	2.0
Number of SNF days, 90-day PDP	1,179	1,178	41.8	40.4	40.7	39.5	-0.4	-3.3	2.5	-2.8	2.1
Number of HHA visits, 90-day PDP[1]	685	715	17.3	18.2	17.5	18.9	-0.4	-2.0	1.2	-1.8	0.9
Emergency department use, first 30 days of episode	1,165	1,171	8.7%	8.1%	9.5%	8.6%	0.2*	-3.2	3.6	-2.6	3.0
Emergency department use, first 90 days of episode	1,164	1,171	19.2%	20.5%	22.5%	20.6%	3.2*	-1.5	7.8	-0.7	7.1
Unplanned readmission rate, first 30 days of episode	1,165	1,171	14.0%	12.6%	16.3%	11.0%	3.9	0.1	7.7	0.7	7.1
Unplanned readmission rate, first 90 days of episode	1,164	1,171	27.6%	25.6%	29.4%	24.1%	3.3	-1.8	8.5	-1.0	7.6
All-cause mortality rate, first 30 days of episode	1,173	1,170	3.7%	2.4%	3.6%	2.4%	-0.2	-2.1	1.8	-1.8	1.5
All-cause mortality rate, first 90 days of episode	1,172	1,170	9.9%	7.6%	8.1%	7.8%	-2.0	-5.2	1.2	-4.7	0.7
Improved long-form (overall) ADL function	970	1,041	66.3%	73.5%	63.1%	65.4%	4.9	-1.2	11.1	-0.2	10.1
Improved early-loss (self-care) ADL function	987	1,041	43.5%	56.8%	41.6%	45.2%	9.7	2.9	16.5	4.0	15.4
Improved mid-loss (mobility) ADL function	966	1,041	58.9%	69.3%	59.5%	61.0%	8.8	1.7	15.8	2.9	14.7

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit Q.9: Hip & Femur Procedures except Major Joint Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	627	631	$50,345	$46,874	$49,494	$47,026	-$1,002	-$3,684	$1,679	-$3,253	$1,248
Total amount included in the bundle definition, 30 day episodes	36	38	$15,555	$15,851	$16,434	$15,303	$1,427	-$784	$3,639	-$429	$3,283
Total amount included in the bundle definition, 60 day episodes	218	218	$29,693	$26,511	$27,008	$26,388	-$2,562	-$5,997	$873	-$5,445	$321
Total amount included in the bundle definition, 90 day episodes	373	375	$33,453	$28,803	$32,356	$30,107	-$2,401	-$5,469	$667	-$4,976	$174
Total amount not included the bundle, 90-day episodes	373	375	$464	$512	$332	$620	-$239	-$691	$213	-$619	$140
Total allowed payment amount, 30 days pre-bundle	627	631	$19,723	$19,088	$19,477	$19,242	-$401	-$1,741	$940	-$1,526	$725
Total allowed payment amount, 30 days post-bundle	512	521	$4,296	$4,095	$4,908	$4,580	$128	-$738	$994	-$599	$855
Total allowed payment amount, 90 days post-bundle	303	297	$10,812	$10,694	$12,263	$10,757	$1,388	-$1,298	$4,074	-$866	$3,642
Total allowed payment amount, 120 days post-bundle	162	154	$12,864	$12,545	$13,968	$13,552	$97	-$4,379	$4,573	-$3,660	$3,854
Total allowed payment amount, 180 days post-bundle	162	151	$16,890	$16,881	$17,445	$17,575	-$138	-$5,779	$5,502	-$4,872	$4,596
Readmissions standardized allowed amount, 90-day PDP	633	633	$2,886	$2,696	$2,983	$2,695	$97	-$767	$961	-$629	$822
SNF standardized allowed amount, 90-day PDP	633	633	$25,363	$22,140	$24,918	$23,538	-$1,843	-$4,082	$396	-$3,722	$36
HHA standardized allowed amount, 90-day PDP	633	633	$1,918	$2,130	$1,742	$1,836	$117	-$222	$457	-$167	$402
Therapy standardized allowed amount, 90-day PDP	627	631	$214	$234	$238	$189	$69	-$36	$174	-$19	$158
Imaging and laboratory services standardized allowed amount, 90-day PDP	627	631	$279	$270	$289	$268	$12	-$34	$57	-$27	$50

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Procedures standardized allowed amount, 90-day PDP	627	631	$225	$188	$225	$190	-$2	-$79	$75	-$67	$63
Evaluation and management standardized allowed amount, 90-day PDP	627	631	$1,506	$1,770	$1,485	$1,474	$274	-$71	$620	-$15	$564
Other institutional services standardized allowed amount, 90-day PDP	627	631	$308	$360	$274	$327	$0	-$140	$141	-$118	$118
Other non-institutional services standardized allowed amount, 90-day PDP	627	631	$607	$544	$596	$553	-$21	-$124	$82	-$108	$66
Anchor inpatient length of stay	633	633	6.0	5.9	6.1	5.8	0.2	0.0	0.4	0.0	0.4
Number of institutional PAC days, 90-day PDP	633	632	47.6	41.2	47.3	44.4	-3.6	-7.3	0.2	-6.7	-0.4
Number of SNF days, 90-day PDP	633	632	46.3	40.2	46.2	43.5	-3.4	-7.2	0.3	-6.6	-0.3
Number of HHA visits, 90-day PDP[1]	381	344	17.9	20.7	17.9	18.1	2.6	0.5	4.6	0.8	4.3
Emergency department use, first 30 days of episode	630	632	7.7%	7.5%	8.4%	8.4%	-0.2	-3.9	3.6	-3.3	3.0
Emergency department use, first 90 days of episode	630	632	19.5%	17.6%	17.2%	19.7%	-4.5	-10.0	0.9	-9.1	0.1
Unplanned readmission rate, first 30 days of episode	630	632	12.0%	10.6%	13.4%	11.2%	0.7	-3.4	4.9	-2.7	4.2
Unplanned readmission rate, first 90 days of episode	630	632	21.1%	19.2%	23.0%	20.8%	0.2	-4.8	5.2	-4.0	4.4
All-cause mortality rate, first 30 days of episode	620	623	3.8%	3.6%	3.7%	3.6%	0.0	-2.7	2.6	-2.3	2.2
All-cause mortality rate, first 90 days of episode	620	623	8.8%	8.5%	10.0%	9.2%	0.5	-3.3	4.3	-2.7	3.7
Improved long-form (overall) ADL function	518	552	68.1%	69.0%	69.5%	70.4%	0.1	-8.0	8.1	-6.7	6.8
Improved early-loss (self-care) ADL function	518	552	44.6%	45.9%	47.8%	48.6%	0.6	-8.1	9.4	-6.7	8.0
Improved mid-loss (mobility) ADL function	518	551	66.0%	63.1%	68.9%	67.9%	-2.0	-10.9	7.0	-9.5	5.6

[1] Dependent on having at least one day or visit in the given setting

Exhibit Q.10: Sepsis Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	1,847	1,834	$49,861	$47,425	$48,236	$46,179	-$379*	-$2,567	$1,809	-$2,215	$1,457
Total amount included in the bundle definition, 30 day episodes	72	71	$13,792	$14,258	$16,258	$14,150	$2,575	$259	$4,891	$631	$4,519
Total amount included in the bundle definition, 60 day episodes	54	53	$27,371	$27,014	$27,915	$24,936	$2,622	-$3,457	$8,701	-$2,480	$7,724
Total amount included in the bundle definition, 90 day episodes	1,721	1,710	$32,432	$30,842	$30,589	$30,069	-$1,069	-$2,919	$780	-$2,622	$483
Total amount not included the bundle, 90-day episodes	1,721	1,710	$1,223	$1,168	$1,215	$1,134	$26	-$367	$420	-$304	$357
Total allowed payment amount, 30 days pre-bundle	1,847	1,834	$25,319	$23,018	$24,575	$22,772	-$499	-$1,931	$933	-$1,701	$703
Total allowed payment amount, 30 days post-bundle	1,344	1,341	$6,058	$5,561	$6,239	$5,750	-$8	-$889	$872	-$748	$731
Total allowed payment amount, 90 days post-bundle	1,051	1,063	$17,314	$15,003	$17,078	$15,443	-$676	-$3,421	$2,070	-$2,980	$1,629
Total allowed payment amount, 120 days post-bundle	811	831	$21,904	$18,919	$19,724	$19,091	-$2,352	-$5,903	$1,199	-$5,332	$628
Total allowed payment amount, 180 days post-bundle	799	818	$28,515	$25,038	$25,479	$26,018	-$4,015	-$8,347	$316	-$7,651	-$380
Readmissions standardized allowed amount, 90-day PDP	1,857	1,858	$7,231	$6,549	$6,810	$6,590	-$463	-$1,511	$585	-$1,342	$417
SNF standardized allowed amount, 90-day PDP	1,857	1,858	$19,358	$18,698	$19,036	$18,382	-$7	-$1,317	$1,303	-$1,107	$1,093
HHA standardized allowed amount, 90-day PDP	1,857	1,858	$1,327	$1,365	$1,153	$1,219	-$29	-$215	$157	-$185	$127
Therapy standardized allowed amount, 90-day PDP	1,847	1,834	$158	$116	$151	$131	-$22	-$80	$37	-$71	$27
Imaging and laboratory services standardized allowed amount, 90-day PDP	1,847	1,834	$361	$346	$356	$333	$8	-$35	$51	-$28	$44

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Procedures standardized allowed amount, 90-day PDP	1,847	1,834	$352	$304	$353	$297	$9	-$54	$71	-$44	$61
Evaluation and management standardized allowed amount, 90-day PDP	1,847	1,834	$2,519	$2,680	$2,414	$2,439	$135	-$76	$347	-$42	$313
Other institutional services standardized allowed amount, 90-day PDP	1,847	1,834	$511	$652	$575	$546	$170	$36	$305	$58	$283
Other non-institutional services standardized allowed amount, 90-day PDP	1,847	1,834	$913	$794	$841	$792	-$71	-$154	$12	-$140	-$1
Anchor inpatient length of stay	1,858	1,858	8.7	8.5	8.4	8.1	0.2	-0.2	0.5	-0.1	0.5
Number of institutional PAC days, 90-day PDP	1,852	1,846	37.5	36.6	37.6	36.5	0.1	-2.3	2.6	-1.9	2.2
Number of SNF days, 90-day PDP	1,851	1,846	36.4	35.4	36.7	35.5	0.1	-2.2	2.5	-1.9	2.1
Number of HHA visits, 90-day PDP[1]	853	706	17.7	18.0	17.1	18.3	-1.0	-2.8	0.8	-2.5	0.5
Emergency department use, first 30 days of episode	1,845	1,843	9.7%	11.3%	10.3%	10.2%	1.7	-1.2	4.6	-0.8	4.2
Emergency department use, first 90 days of episode	1,844	1,843	20.8%	23.4%	22.0%	21.1%	3.5	-0.5	7.5	0.2	6.8
Unplanned readmission rate, first 30 days of episode	1,845	1,843	23.5%	23.1%	23.6%	22.7%	0.5	-3.7	4.6	-3.0	3.9
Unplanned readmission rate, first 90 days of episode	1,844	1,843	41.0%	39.7%	40.1%	39.1%	-0.3*	-4.8	4.2	-4.1	3.4
All-cause mortality rate, first 30 days of episode	1,830	1,839	11.9%	10.3%	13.0%	11.3%	0.0	-2.9	3.0	-2.4	2.5
All-cause mortality rate, first 90 days of episode	1,829	1,839	23.1%	21.7%	24.1%	23.4%	-0.7	-4.4	3.0	-3.8	2.4
Improved long-form (overall) ADL function	1,421	1,417	58.5%	61.8%	51.2%	53.6%	0.9	-5.2	7.0	-4.2	6.0
Improved early-loss (self-care) ADL function	1,439	1,419	34.1%	40.9%	30.2%	32.2%	4.9	-0.8	10.7	0.1	9.8
Improved mid-loss (mobility) ADL function	1,404	1,416	49.7%	53.0%	46.1%	46.5%	2.9	-3.8	9.6	-2.7	8.5

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit Q.11: Simple Pneumonia and Respiratory Infections Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	1,189	1,179	$41,444	$38,758	$41,547	$39,656	-$795*	-$2,978	$1,388	-$2,627	$1,037
Total amount included in the bundle definition, 30 day episodes	59	57	$15,494	$14,355	$15,392	$13,628	$624	-$1,583	$2,831	-$1,228	$2,477
Total amount included in the bundle definition, 90 day episodes	1,085	1,077	$29,091	$27,485	$28,896	$28,225	-$935	-$3,139	$1,269	-$2,785	$915
Total amount not included the bundle, 90 day episodes	1,085	1,077	$799	$921	$1,094	$881	$336	-$87	$759	-$19	$691
Total allowed payment amount, 30 days pre-bundle	1,190	1,179	$19,042	$16,697	$19,504	$17,730	-$570	-$1,915	$774	-$1,699	$558
Total allowed payment amount, 30 days post-bundle	840	868	$5,760	$4,862	$5,911	$5,083	-$71	-$1,060	$919	-$901	$760
Total allowed payment amount, 90 days post-bundle	697	707	$14,381	$14,207	$14,630	$13,893	$563	-$2,195	$3,321	-$1,752	$2,878
Total allowed payment amount, 120 days post-bundle	524	534	$19,481	$18,985	$16,616	$16,372	-$253	-$4,372	$3,866	-$3,710	$3,204
Total allowed payment amount, 180 days post-bundle	516	532	$26,156	$25,545	$22,763	$22,502	-$350	-$5,321	$4,622	-$4,522	$3,823
Readmissions standardized allowed amount, 90-day PDP	1,191	1,192	$5,696	$5,165	$6,381	$5,523	$327	-$624	$1,278	-$472	$1,125
SNF standardized allowed amount, 90-day PDP	1,191	1,192	$18,237	$17,364	$17,656	$17,926	-$1,143	-$2,652	$365	-$2,410	$123
HHA standardized allowed amount, 90-day PDP	1,191	1,192	$1,418	$1,429	$1,279	$1,305	-$16	-$219	$188	-$187	$156
Therapy standardized allowed amount, 90-day PDP	1,189	1,179	$189	$113	$172	$110	-$14	-$86	$57	-$75	$46
Imaging and laboratory services standardized allowed amount, 90-day PDP	1,189	1,179	$339	$312	$336	$327	-$18	-$61	$24	-$54	$17
Procedures standardized allowed amount, 90-day PDP	1,189	1,179	$213	$192	$238	$237	-$20	-$78	$38	-$69	$29

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Evaluation and management standardized allowed amount, 90-day PDP	1,189	1,179	$2,071	$2,152	$2,212	$2,197	$96	-$123	$315	-$88	$280
Other institutional services standardized allowed amount, 90-day PDP	1,189	1,179	$435	$452	$449	$451	$14	-$118	$146	-$97	$125
Other non-institutional services standardized allowed amount, 90-day PDP	1,189	1,179	$782	$681	$793	$654	$38	-$52	$129	-$37	$114
Qualifying inpatient length of stay	1,192	1,192	7.1	7.1	7.0	6.9	0.2	-0.2	0.5	-0.1	0.5
Number of institutional PAC days, 90-day PDP	1,187	1,186	35.1	33.7	35.0	35.3	-1.7	-4.6	1.1	-4.1	0.7
Number of SNF days, 90-day PDP	1,186	1,186	34.5	33.1	34.3	34.7	-1.8	-4.7	1.1	-4.2	0.6
Number of HHA visits, 90-day PDP[1]	550	495	18.3	17.6	17.8	18.7	-1.6	-3.5	0.4	-3.2	0.0
Emergency department use, first 30 days of episode	1,181	1,187	10.0%	9.8%	10.3%	9.8%	0.3	-2.9	3.6	-2.4	3.0
Emergency department use, first 90 days of episode	1,180	1,187	20.9%	21.4%	20.4%	20.8%	0.1	-4.4	4.6	-3.7	3.9
Unplanned readmission rate, first 30 days of episode	1,181	1,187	20.4%	21.8%	23.7%	20.4%	4.6	0.4	8.8	1.1	8.1
Unplanned readmission rate, first 90 days of episode	1,180	1,187	37.1%	36.2%	40.1%	35.6%	3.6*	-1.2	8.3	-0.4	7.6
All-cause mortality rate, first 30 days of episode	1,181	1,174	11.4%	13.2%	12.9%	10.5%	4.2	0.6	7.8	1.2	7.3
All-cause mortality rate, first 90 days of episode	1,180	1,174	24.6%	23.5%	27.9%	23.1%	3.8	-0.6	8.1	0.1	7.4
Improved long-form (overall) ADL function	925	923	57.4%	62.0%	51.1%	50.6%	5.1	-1.0	11.3	0.0	10.3
Improved early-loss (self-care) ADL function	935	923	34.5%	43.0%	31.8%	29.3%	11.1	5.2	16.9	6.1	16.0
Improved mid-loss (mobility) ADL function	916	922	51.1%	59.6%	46.1%	46.3%	8.3	1.9	14.7	2.9	13.7

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit Q.12: Other Respiratory Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	427	428	$52,317	$50,215	$54,227	$52,202	-$78	-$5,126	$4,971	-$4,315	$4,159
Total amount included in the bundle definition, 90 day episodes	406	406	$31,802	$30,843	$33,064	$32,570	-$465	-$4,364	$3,433	-$3,737	$2,807
Total amount not included the bundle, 90 day episodes	406	406	$885	$895	$1,327	$872	$464	-$272	$1,201	-$154	$1,083
Total allowed payment amount, 30 days pre-bundle	427	428	$27,341	$26,001	$29,741	$27,552	$849	-$2,856	$4,555	-$2,261	$3,960
Total allowed payment amount, 30 days post-bundle	291	293	$6,477	$6,590	$7,496	$6,803	$805	-$1,758	$3,367	-$1,346	$2,955
Total allowed payment amount, 90 days post-bundle	241	243	$20,700	$16,846	$20,733	$19,893	-$3,014	-$10,455	$4,426	-$9,259	$3,231
Total allowed payment amount, 120 days post-bundle	199	208	$24,583	$20,188	$25,148	$25,134	-$4,382	-$13,508	$4,743	-$12,041	$3,277
Total allowed payment amount, 180 days post-bundle	198	201	$30,048	$28,528	$35,088	$33,947	-$378	-$10,650	$9,894	-$8,999	$8,243
Readmissions standardized allowed amount, 90-day PDP	431	431	$7,468	$8,119	$9,319	$8,801	$1,170	-$1,245	$3,585	-$857	$3,196
SNF standardized allowed amount, 90-day PDP	431	431	$18,498	$16,453	$17,685	$17,517	-$1,877	-$4,595	$840	-$4,158	$404
HHA standardized allowed amount, 90-day PDP	431	431	$1,521	$1,653	$1,503	$1,479	$156	-$220	$532	-$159	$472
Imaging and laboratory services standardized allowed amount, 90-day PDP	427	428	$430	$356	$432	$367	-$9	-$101	$84	-$86	$69
Procedures standardized allowed amount, 90-day PDP	427	428	$258	$321	$370	$283	$151	$25	$277	$45	$256
Evaluation and management standardized allowed amount, 90-day PDP	427	428	$2,924	$3,101	$2,999	$2,971	$205	-$272	$681	-$195	$605
Other institutional services standardized allowed amount, 90-day PDP	427	428	$372	$438	$507	$553	$21	-$204	$246	-$168	$210

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other non-institutional services standardized allowed amount, 90-day PDP	427	428	$909	$781	$968	$823	$17	-$136	$169	-$111	$145
Qualifying inpatient length of stay	431	431	9.6	9.1	9.7	9.0	0.2	-0.8	1.2	-0.7	1.0
Number of institutional PAC days, 90-day PDP	429	429	35.4	33.0	34.5	34.4	-2.4	-7.2	2.5	-6.5	1.7
Number of SNF days, 90-day PDP	429	429	34.1	31.5	32.8	32.5	-2.3	-7.1	2.5	-6.3	1.7
Number of HHA visits, 90-day PDP[1]	218	196	17.9	18.5	17.7	19.3	-0.9	-4.0	2.1	-3.5	1.6
Emergency department use, first 30 days of episode	425	425	10.6%	12.2%	9.9%	11.2%	0.2	-5.4	5.9	-4.5	5.0
Emergency department use, first 90 days of episode	425	425	21.4%	21.1%	23.6%	22.3%	1.1	-7.5	9.7	-6.2	8.3
Unplanned readmission rate, first 30 days of episode	425	425	29.6%	26.6%	31.5%	30.6%	-2.2	-9.9	5.5	-8.6	4.3
Unplanned readmission rate, first 90 days of episode	425	425	44.8%	42.6%	47.4%	50.4%	-5.2	-14.9	4.5	-13.3	2.9
All-cause mortality rate, first 30 days of episode	428	423	11.8%	11.7%	12.4%	13.5%	-1.1	-7.0	4.8	-6.1	3.9
All-cause mortality rate, first 90 days of episode	428	423	23.2%	25.9%	28.7%	27.7%	3.6	-4.5	11.7	-3.2	10.4
Improved long-form (overall) ADL function	311	337	63.2%	69.1%	56.4%	48.4%	13.9	2.8	24.9	4.6	23.1
Improved early-loss (self-care) ADL function	318	337	46.1%	50.6%	34.4%	30.7%	8.3	-2.0	18.5	-0.4	16.9
Improved mid-loss (mobility) ADL function	302	338	54.4%	59.9%	50.6%	43.4%	12.7	2.2	23.3	3.9	21.6

[1] Dependent on having at least one day or visit in the given setting

Exhibit Q.13: Renal Failure Episodes, Model 3 SNF, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	879	876	$43,626	$41,915	$43,786	$41,760	$314	-$2,762	$3,391	-$2,268	$2,896
Total amount included in the bundle definition, 30 day episodes	35	34	$13,754	$14,491	$15,118	$13,499	$2,357	-$634	$5,347	-$153	$4,866
Total amount included in the bundle definition, 90 day episodes	837	834	$32,819	$31,431	$30,751	$30,540	-$1,178	-$3,991	$1,635	-$3,538	$1,183
Total amount not included the bundle, 90 day episodes	837	834	$1,551	$1,183	$1,427	$1,290	-$231	-$867	$406	-$764	$303
Total allowed payment amount, 30 days pre-bundle	879	876	$18,780	$16,212	$18,481	$17,324	-$1,411	-$2,937	$115	-$2,691	-$130
Total allowed payment amount, 30 days post-bundle	638	678	$6,317	$6,229	$6,035	$5,566	$381	-$957	$1,719	-$742	$1,504
Total allowed payment amount, 90 days post-bundle	536	559	$18,074	$16,512	$16,353	$15,332	-$540	-$4,597	$3,516	-$3,945	$2,864
Total allowed payment amount, 120 days post-bundle	427	450	$23,326	$20,989	$18,607	$17,325	-$1,054	-$6,148	$4,039	-$5,329	$3,221
Total allowed payment amount, 180 days post-bundle	423	444	$31,039	$28,292	$25,687	$23,395	-$456	-$6,733	$5,821	-$5,724	$4,812
Readmissions standardized allowed amount, 90-day PDP	886	886	$6,700	$6,353	$6,980	$6,413	$221	-$1,247	$1,688	-$1,011	$1,452
SNF standardized allowed amount, 90-day PDP	886	886	$18,851	$18,542	$18,724	$19,013	-$597	-$2,569	$1,375	-$2,252	$1,058
HHA standardized allowed amount, 90-day PDP	886	886	$1,568	$1,700	$1,572	$1,579	$125	-$137	$388	-$95	$346
Imaging and laboratory services standardized allowed amount, 90-day PDP	879	876	$381	$350	$379	$340	$8	-$52	$68	-$42	$58
Procedures standardized allowed amount, 90-day PDP	879	876	$309	$308	$347	$316	$31	-$65	$126	-$49	$111
Evaluation and management standardized allowed amount, 90-day PDP	879	876	$2,682	$2,876	$2,521	$2,549	$167	-$178	$511	-$122	$456

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	879	876	$507	$481	$599	$591	-$18	-$199	$163	-$169	$134
Other non-institutional services standardized allowed amount, 90-day PDP	879	876	$900	$746	$873	$710	$10	-$116	$136	-$96	$115
Qualifying inpatient length of stay	886	886	6.9	6.3	6.4	6.3	-0.4	-0.8	0.0	-0.8	-0.1
Number of institutional PAC days, 90-day PDP	883	886	36.3	35.9	36.9	36.7	-0.2	-3.9	3.6	-3.3	3.0
Number of SNF days, 90-day PDP	882	886	35.5	34.9	36.0	35.9	-0.5	-4.1	3.2	-3.6	2.6
Number of HHA visits, 90-day PDP[1]	452	429	17.3	18.5	18.7	19.5	0.5	-1.8	2.7	-1.4	2.4
Emergency department use, first 30 days of episode	877	883	10.5%	7.9%	12.5%	9.3%	0.6	-3.8	5.1	-3.1	4.4
Emergency department use, first 90 days of episode	877	883	22.8%	20.4%	23.0%	21.0%	-0.4	-6.4	5.6	-5.4	4.7
Unplanned readmission rate, first 30 days of episode	877	883	21.7%	22.1%	26.0%	21.9%	4.5	-0.9	9.9	0.0	9.1
Unplanned readmission rate, first 90 days of episode	877	883	40.2%	40.5%	45.0%	39.0%	6.3	-0.3	12.8	0.8	11.8
All-cause mortality rate, first 30 days of episode	876	878	10.1%	9.3%	10.4%	8.8%	0.7	-3.3	4.7	-2.7	4.1
All-cause mortality rate, first 90 days of episode	876	878	24.1%	24.2%	24.4%	19.4%	5.1	0.2	10.0	1.0	9.2
Improved long-form (overall) ADL function	687	697	62.6%	68.2%	57.1%	56.3%	6.3	-1.2	13.9	0.01	12.7
Improved early-loss (self-care) ADL function	698	697	44.9%	50.6%	35.3%	36.9%	4.1	-3.5	11.8	-2.3	10.6
Improved mid-loss (mobility) ADL function	682	696	51.2%	63.2%	50.6%	50.2%	12.5	5.0	20.1	6.2	18.8

[1] Dependent on having at least one day or visit in the given setting

Appendix R: Impact of BPCI on Allowed Payment, Quality, and Utilization Measures, by Clinical Episode, Baseline to Intervention, Model 3 HHA

The following tables display risk-adjusted difference-in-differences results for all payment, quality, and utilization measures assessed in the OY2 Annual Report. Results are presented by EI type/clinical episode. Please observe the following abbreviations, which are used throughout the appendix:

- DiD = difference-in-differences
- LCI = lower confidence interval at the 5% and 10% level
- UCI = upper confidence interval at the 5% and 10% level
- PDP = post-qualifying hospitalization discharge period
- ADL = activities of daily living
- IP = inpatient hospitalizations
- PAC = post-acute care
- SNF = skilled nursing facility
- HHA = home health agency
- IRF = inpatient rehabilitation facility

Note that sample sizes reflect the number of episodes initiated during the intervention period that met inclusion criteria for the given outcome. Medicare payments are risk-adjusted and standardized to remove the effect of geographic differences in wages, extra amounts to account for teaching programs and other policy factors. Medicare payments are expressed in 2015 dollars, the result of adjusting actual dollar amounts based on changed in the medical component of the CPI-U. Results reflect Lewin analysis of Medicare claims, assessment, and enrollment data for episodes that began Q4 2011 through Q3 2012 (baseline) and Q4 2013 through Q3 2015 (intervention period) for BPCI episode initiators and the matched comparison providers.

Exhibit R.1: Major Joint Replacement of the Lower Extremity Episodes, Model 3 HHA, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	631	634	$25,946	$25,050	$24,820	$24,687	-$764*	-$2,352	$825	-$2,097	$570
Total amount included in the bundle definition, 90 day episodes	434	434	$7,694	$7,104	$6,692	$7,059	-$957	-$2,307	$392	-$2,090	$175
Total amount not included the bundle, 90 day episodes	434	434	$424	$507	$332	$391	$24	-$297	$344	-$245	$293
Total allowed payment amount, 30 days pre-bundle	631	634	$19,625	$18,308	$18,983	$17,827	-$161	-$1,367	$1,044	-$1,173	$851
Total allowed payment amount, 30 days post-bundle	494	502	$1,253	$1,502	$1,108	$1,228	$129	-$527	$785	-$422	$679
Total allowed payment amount, 90 days post-bundle	147	149	$3,718	$2,718	$4,016	$4,037	-$1,022	-$4,232	$2,188	-$3,716	$1,672
Total allowed payment amount, 120 days post-bundle	123	125	$6,919	$6,261	$3,590	$2,782	$151	-$4,822	$5,123	-$4,023	$4,324
Total allowed payment amount, 180 days post-bundle	123	124	$9,086	$9,188	$5,563	$4,321	$1,343	-$5,603	$8,289	-$4,487	$7,173
HHA standardized allowed amount, 90-day PDP	639	639	$3,960	$3,646	$3,633	$3,502	-$184	-$473	$106	-$427	$59
Therapy standardized allowed amount, 90-day PDP	631	634	$785	$639	$686	$626	-$85	-$236	$66	-$212	$42
Imaging and laboratory services standardized allowed amount, 90-day PDP	631	634	$321	$292	$314	$293	-$9	-$68	$51	-$59	$41
Procedures standardized allowed amount, 90-day PDP	631	634	$291	$259	$289	$287	-$29	-$111	$52	-$98	$39
Evaluation and management standardized allowed amount, 90-day PDP	631	634	$579	$644	$535	$600	$0	-$112	$113	-$94	$95
Other institutional services standardized allowed amount, 90-day PDP	631	634	$330	$342	$258	$439	-$169	-$339	$1	-$312	-$26
Other non-institutional services standardized allowed amount, 90-day PDP	631	634	$202	$221	$189	$225	-$16	-$110	$79	-$95	$63

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Qualifying inpatient length of stay	639	639	4.1	3.5	4.0	3.6	-0.2	-0.4	0.0	-0.4	0.0
Number of institutional PAC days, 90-day PDP[1]	148	149	14.1	15.1	13.6	14.7	-0.1	-2.2	2.1	-1.9	1.7
Number of SNF days, 90-day PDP[1]	85	96	15.5	17.0	14.4	15.4	0.5	-2.6	3.6	-2.1	3.1
Number of HHA visits, 90-day PDP	639	639	15.7	16.8	15.0	16.0	0.2	-1.6	2.0	-1.4	1.7
Emergency department use, first 30 days of episode	631	639	8.1%	7.6%	7.0%	8.2%	-1.7	-5.1	1.7	-4.5	1.1
Emergency department use, first 90 days of episode	631	639	13.6%	13.1%	11.9%	14.6%	-3.2	-8.0	1.5	-7.2	0.8
Unplanned readmission rate, first 30 days of episode	631	639	4.5%	4.4%	4.1%	4.6%	-0.6	-3.4	2.2	-3.0	1.8
Unplanned readmission rate, first 90 days of episode	631	639	7.6%	7.1%	6.3%	8.0%	-2.1	-5.8	1.5	-5.2	0.9
HHA ADL, improved bathing	533	537	91.0%	92.2%	90.9%	91.3%	0.7	-4.4	5.8	-3.5	5.0
HHA ADL, improved ambulation	533	537	85.6%	85.4%	87.7%	86.8%	0.7	-5.8	7.2	-4.8	6.1
HHA ADL, improved upper-body dressing	533	537	93.3%	94.1%	94.4%	94.0%	1.2	-3.2	5.5	-2.5	4.8
HHA ADL, improved lower-body dressing	533	537	91.6%	92.0%	88.0%	90.4%	-2.0	-7.5	3.6	-6.6	2.7
HHA ADL, improved bed transferring	533	537	81.6%	86.0%	83.8%	80.3%	7.9	-1.5	17.3	0.1	15.8

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, and readmission outcomes.

Exhibit R.2: Congestive Heart Failure Episodes, Model 3 HHA, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	2,462	2,523	$27,162	$25,961	$25,985	$25,755	-$970	-$2,080	$140	-$1,902	-$39
Total amount included in the bundle definition, 90 day episodes	2,414	2,476	$15,999	$15,155	$14,989	$15,119	-$975	-$1,958	$8	-$1,800	-$150
Total amount not included the bundle, 90 day episodes	2,414	2,476	$908	$892	$904	$871	$17	-$212	$247	-$175	$210
Total allowed payment amount, 30 days pre-bundle	2,462	2,523	$16,244	$15,638	$15,388	$14,999	-$216	-$1,113	$680	-$969	$536
Total allowed payment amount, 30 days post-bundle	2,057	2,122	$5,063	$4,272	$4,698	$4,663	-$756	-$1,418	-$95	-$1,311	-$201
Total allowed payment amount, 90 days post-bundle	1,825	1,908	$14,432	$12,761	$13,713	$13,949	-$1,906	-$3,305	-$508	-$3,080	-$732
Total allowed payment amount, 120 days post-bundle	1,511	1,598	$18,600	$16,092	$17,755	$17,714	-$2,467	-$4,319	-$615	-$4,022	-$912
Total allowed payment amount, 180 days post-bundle	1,490	1,590	$25,980	$22,922	$24,881	$24,789	-$2,966	-$5,262	-$669	-$4,893	-$1,038
Readmissions standardized allowed amount, 90-day PDP	2,551	2,551	$7,002	$6,657	$6,937	$6,739	-$147	-$1,013	$719	-$873	$580
SNF standardized allowed amount, 90-day PDP	2,551	2,551	$2,126	$2,290	$1,942	$2,518	-$412	-$813	-$11	-$749	-$76
IRF standardized allowed amount, 90-day PDP	2,551	2,551	$920	$910	$648	$604	$35	-$287	$356	-$235	$305
HHA standardized allowed amount, 90-day PDP	2,551	2,551	$3,771	$3,410	$3,270	$3,157	-$248	-$420	-$76	-$393	-$104
Therapy standardized allowed amount, 90-day PDP	2,462	2,523	$42	$33	$31	$34	-$13	-$28	$3	-$26	$0
Imaging and laboratory services standardized allowed amount, 90-day PDP	2,462	2,523	$535	$521	$556	$556	-$13	-$54	$27	-$47	$21
Procedures standardized allowed amount, 90-day PDP	2,462	2,523	$369	$308	$406	$354	-$9	-$73	$55	-$63	$45
Evaluation and management standardized allowed amount, 90-day PDP	2,462	2,523	$1,942	$1,876	$1,939	$1,921	-$48	-$182	$86	-$160	$64

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other institutional services standardized allowed amount, 90-day PDP	2,462	2,523	$746	$827	$673	$805	-$51	-$224	$121	-$196	$93
Other non-institutional services standardized allowed amount, 90-day PDP	2,462	2,523	$541	$561	$576	$544	$52	-$17	$121	-$6	$110
Qualifying inpatient length of stay	2,551	2,551	6.0	5.9	6.0	5.7	0.2	-0.1	0.5	0.0	0.4
Number of institutional PAC days, 90-day PDP[1]	578	594	20.4	20.7	20.5	22.1	-1.3	-3.6	1.0	-3.2	0.6
Number of SNF days, 90-day PDP[1]	471	509	21.3	20.9	21.1	22.4	-1.7	-4.3	1.0	-3.9	0.5
Number of HHA visits, 90-day PDP	2,551	2,551	26.2	23.3	20.7	21.1	-3.4	-6.4	-0.3	-5.9	-0.8
Emergency department use, first 30 days of episode	2,484	2,546	10.5%	10.4%	11.9%	12.1%	-0.3	-2.4	1.8	-2.0	1.5
Emergency department use, first 90 days of episode	2,483	2,544	21.0%	22.0%	24.1%	22.6%	2.5	0.1	4.9	0.5	4.5
Unplanned readmission rate, first 30 days of episode	2,484	2,546	24.2%	23.4%	22.4%	20.6%	1.0	-2.3	4.3	-1.8	3.7
Unplanned readmission rate, first 90 days of episode	2,483	2,544	44.0%	42.5%	40.7%	39.1%	0.1	-3.5	3.6	-2.9	3.1
All-cause mortality rate, first 30 days of episode	2,522	2,539	4.5%	3.4%	4.2%	4.2%	-1.0	-2.3	0.3	-2.1	0.1
All-cause mortality rate, first 90 days of episode	2,522	2,537	13.1%	11.5%	12.2%	12.4%	-1.7	-4.0	0.5	-3.6	0.2
HHA ADL, improved bathing	1,758	1,681	59.3%	63.2%	61.1%	60.3%	4.7	-1.4	10.7	-0.4	9.8
HHA ADL, improved ambulation	1,758	1,681	53.2%	55.0%	55.3%	58.1%	-1.0	-5.7	3.8	-4.9	3.0
HHA ADL, improved upper-body dressing	1,758	1,681	57.9%	62.7%	66.5%	65.9%	5.4*	-0.2	10.9	0.7	10.0
HHA ADL, improved lower-body dressing	1,758	1,681	59.3%	61.5%	64.5%	64.7%	2.0	-2.0	6.0	-1.3	5.4
HHA ADL, improved bed transferring	1,758	1,681	48.0%	47.4%	54.9%	52.0%	2.2	-3.6	8.1	-2.7	7.1

[1] Dependent on having at least one day or visit in the given setting

*This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, mortality, and the improved upper-body dressing ADL outcomes.

Exhibit R.3: Simple Pneumonia and Respiratory Infections Episodes, Model 3 HHA, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	666	672	$24,785	$24,621	$25,273	$25,020	$90	-$2,255	$2,435	-$1,878	$2,058
Total amount included in the bundle definition, 90 day episodes	666	672	$12,996	$12,952	$13,018	$13,376	-$403	-$2,171	$1,366	-$1,887	$1,081
Total amount not included the bundle, 90 day episodes	666	672	$1,182	$795	$1,113	$1,089	-$363	-$830	$105	-$755	$30
Total allowed payment amount, 30 days pre-bundle	666	672	$16,299	$15,703	$16,112	$15,050	$466	-$957	$1,889	-$728	$1,660
Total allowed payment amount, 30 days post-bundle	553	576	$3,687	$3,472	$4,062	$3,951	-$104	-$1,112	$903	-$950	$742
Total allowed payment amount, 90 days post-bundle	491	500	$9,997	$10,676	$11,424	$11,708	$395	-$2,053	$2,843	-$1,659	$2,449
Total allowed payment amount, 120 days post-bundle	428	438	$12,926	$13,836	$15,800	$15,175	$1,536	-$1,836	$4,907	-$1,294	$4,365
Total allowed payment amount, 180 days post-bundle	428	434	$18,941	$19,847	$21,633	$21,249	$1,290	-$2,898	$5,477	-$2,225	$4,804
Readmissions standardized allowed amount, 90-day PDP	680	680	$4,327	$4,426	$4,960	$4,885	$173	-$1,052	$1,399	-$855	$1,202
SNF standardized allowed amount, 90-day PDP	680	680	$2,452	$2,348	$2,437	$2,467	-$134	-$912	$644	-$787	$519
HHA standardized allowed amount, 90-day PDP	680	680	$3,976	$3,783	$3,808	$3,726	-$112	-$427	$203	-$376	$153
Imaging and laboratory services standardized allowed amount, 90-day PDP	666	672	$481	$497	$482	$534	-$36	-$111	$40	-$99	$28
Procedures standardized allowed amount, 90-day PDP	666	672	$296	$272	$298	$317	-$42	-$128	$43	-$114	$29
Evaluation and management standardized allowed amount, 90-day PDP	666	672	$1,309	$1,432	$1,391	$1,407	$107	-$113	$326	-$77	$291
Other institutional services standardized allowed amount, 90-day PDP	666	672	$791	$913	$637	$1,042	-$284	-$580	$12	-$532	-$36

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Other non-institutional services standardized allowed amount, 90-day PDP	666	672	$597	$538	$588	$643	-$113	-$247	$21	-$226	-$1
Qualifying inpatient length of stay	680	680	6.1	5.7	6.4	5.9	0.0	-0.4	0.4	-0.3	0.3
Number of institutional PAC days, 90-day PDP[1]	192	177	19.2	18.6	19.7	18.8	0.2	-3.0	3.4	-2.5	2.9
Number of SNF days, 90-day PDP[1]	141	151	19.7	19.3	19.7	18.4	0.9	-2.9	4.8	-2.3	4.2
Number of HHA visits, 90-day PDP	680	680	21.1	22.4	19.9	21.1	0.1	-1.9	2.1	-1.6	1.8
Emergency department use, first 30 days of episode	672	676	14.0%	14.4%	13.8%	16.0%	-1.8*	-7.0	3.3	-6.2	2.5
Emergency department use, first 90 days of episode	672	676	27.4%	28.0%	25.2%	30.7%	-4.8	-11.3	1.6	-10.3	0.6
Unplanned readmission rate, first 30 days of episode	672	676	17.2%	15.9%	18.5%	17.3%	-0.1	-4.8	4.6	-4.1	3.8
Unplanned readmission rate, first 90 days of episode	672	676	30.8%	31.9%	31.3%	31.7%	0.7	-5.6	6.9	-4.6	5.9
All-cause mortality rate, first 30 days of episode	674	675	4.2%	5.0%	4.6%	3.1%	2.3	-0.4	5.0	0.0	4.6
All-cause mortality rate, first 90 days of episode	674	675	11.9%	11.9%	12.0%	10.8%	1.2	-2.5	5.0	-1.9	4.4
HHA ADL, improved bathing	489	447	61.8%	63.1%	59.5%	64.8%	-4.0	-11.6	3.7	-10.3	2.4
HHA ADL, improved ambulation	489	447	62.2%	61.7%	58.7%	58.6%	-0.4	-8.2	7.4	-6.9	6.2
HHA ADL, improved upper-body dressing	489	447	61.8%	63.0%	65.9%	65.4%	1.8	-5.9	9.4	-4.6	8.2
HHA ADL, improved lower-body dressing	489	447	62.5%	65.0%	63.0%	63.5%	1.9	-5.6	9.4	-4.4	8.2
HHA ADL, improved bed transferring	489	447	55.0%	52.2%	56.8%	53.7%	0.4	-7.6	8.3	-6.3	7.0

[1] Dependent on having at least one day or visit in the given setting

* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Appendix S: Impact of BPCI on Allowed Payment, Quality, and Utilization Measures, by Clinical Episode, Baseline to Intervention, Model 4 ACH

The following tables display risk-adjusted difference-in-differences results for all payment, quality, and utilization measures assessed in the OY2 Annual Report. Results are presented by clinical episode. Please observe the following abbreviations, which are used throughout the appendix:

- DiD = difference-in-differences
- LCI = lower confidence interval at the 5% and 10% level
- UCI = upper confidence interval at the 5% and 10% level
- PDP = post-anchor hospitalization discharge period
- ADL = activities of daily living
- IP = inpatient hospitalizations
- PAC = post-acute care
- SNF = skilled nursing facility
- HHA = home health agency
- IRF = inpatient rehabilitation facility

Note that sample sizes reflect the number of episodes initiated during the intervention period that met inclusion criteria for the given outcome. Medicare payments are risk-adjusted and standardized to remove the effect of geographic differences in wages, extra amounts to account for teaching programs and other policy factors. Medicare payments are expressed in 2015 dollars, the result of adjusting actual dollar amounts based on changed in the medical component of the CPI-U. Results reflect Lewin analysis of Medicare claims, assessment, and enrollment data for episodes that began Q4 2011 through Q3 2012 (baseline) and Q4 2013 through Q3 2015 (intervention period) for BPCI episode initiators and the matched comparison providers.

Exhibit S.1: Coronary Artery Bypass Graft Episodes, Model 4 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	658	657	$52,693	$50,080	$54,734	$50,970	$1,151	-$4,251	$6,552	-$3,382	$5,684
Total amount included in the bundle definition	675	669	$41,939	$39,419	$40,065	$37,546	-$2	-$1,926	$1,921	-$1,617	$1,612
Total amount not included in bundle definiton[1]	658	656	$4,713	$5,227	$7,489	$7,286	$717	-$1,561	$2,996	-$1,195	$2,630
Allowed payment amount for Part B services, 30 days pre-bundle	675	669	$2,451	$2,538	$2,394	$2,750	-$268	-$660	$125	-$597	$62
Total allowed amount, IP stays, 90 days post-bundle	558	562	$3,732	$3,521	$2,897	$2,292	$394	-$1,458	$2,245	-$1,160	$1,948
Total allowed amount, IP stays, 120 days post-bundle	463	468	$4,115	$4,070	$3,856	$3,155	$656	-$1,200	$2,512	-$901	$2,213
Total allowed amount, IP stays, 180 days post-bundle	463	465	$5,259	$4,887	$5,372	$5,102	-$102	-$2,322	$2,118	-$1,965	$1,761
Total allowed amount not included in bundle, 30 days post-bundle	647	649	$1,929	$1,863	$2,466	$2,167	$233	-$405	$871	-$302	$769
Total allowed amount not included in bundle, 90 days post-bundle	558	562	$4,627	$4,683	$5,390	$5,103	$344	-$1,433	$2,120	-$1,147	$1,834
Total allowed amount not included in bundle, 120 days post-bundle	463	468	$5,493	$5,750	$6,621	$6,730	$149	-$1,670	$1,967	-$1,377	$1,675
Total allowed amount not included in bundle, 180 days post-bundle	463	465	$7,122	$8,006	$9,320	$9,812	$392	-$1,314	$2,098	-$1,040	$1,823
Inpatient anchor stay standardized allowed amount	676	676	$32,520	$31,217	$32,942	$31,183	$456	-$927	$1,838	-$704	$1,616
Readmissions standardized allowed amount, 90-day PDP	643	652	$3,747	$2,692	$4,177	$2,922	$200	-$1,790	$2,190	-$1,470	$1,870
SNF standardized allowed amount, 90-day PDP	643	652	$1,990	$2,179	$2,515	$2,483	$221	-$1,104	$1,546	-$891	$1,333
IRF standardized allowed amount, 90-day PDP	643	652	$2,001	$1,772	$3,764	$3,092	$443	-$1,061	$1,947	-$820	$1,705
HHA standardized allowed amount, 90-day PDP	643	652	$1,666	$1,704	$1,677	$1,702	$13	-$274	$299	-$228	$253
Imaging and laboratory services standardized allowed amount, 90-day PDP	642	645	$510	$392	$586	$512	-$43	-$124	$38	-$111	$25

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Procedures standardized allowed amount, 90-day PDP	642	645	$363	$296	$252	$232	-$46	-$173	$80	-$152	$60
Evaluation and management standardized allowed amount, 90-day PDP	642	645	$1,137	$1,102	$1,633	$1,507	$91	-$265	$447	-$208	$390
Other institutional services standardized allowed amount, 90-day PDP	642	645	$1,172	$1,414	$971	$1,296	-$83	-$578	$413	-$498	$333
Other non-institutional services standardized allowed amount, 90-day PDP	642	645	$213	$216	$287	$300	-$9	-$139	$121	-$119	$100
Anchor inpatient length of stay	678	678	10.8	10.5	10.5	10.2	0.0	-0.6	0.7	-0.5	0.6
Number of institutional PAC days, 90-day PDP[2]	240	171	21.1	19.2	21.0	17.8	1.3	-5.4	7.9	-4.3	6.8
Number of SNF days, 90-day PDP[2]	140	98	23.2	23.4	25.8	22.0	4.0	-5.3	13.3	-3.9	11.8
Number of HHA visits, 90-day PDP[2]	491	293	13.1	14.1	16.0	16.4	0.6	-1.5	2.7	-1.2	2.3
Patients discharged to PAC	659	663	65.4%	72.7%	61.5%	67.5%	1.3	-7.6	10.3	-6.2	8.8
Patients discharged to institutional PAC (of those who received PAC)	561	352	39.2%	38.8%	54.8%	50.8%	3.5	-9.2	16.2	-7.1	14.2
Emergency department use, 30-day PDP	659	663	8.3%	8.7%	13.7%	15.0%	-0.9	-5.1	3.3	-4.4	2.7
Emergency department use, 90-day PDP	643	652	18.0%	16.9%	23.9%	24.7%	-2.0	-9.0	5.1	-7.9	3.9
Unplanned readmission rate, 30-day PDP	659	663	13.4%	11.4%	17.1%	14.7%	0.4	-5.2	5.9	-4.3	5.0
Unplanned readmission rate, 90-day PDP	643	652	19.9%	17.0%	27.1%	23.5%	0.7	-7.7	9.2	-6.4	7.8
All-cause mortality rate, 30-day PDP	659	663	1.8%	1.2%	2.0%	0.8%	0.5**	-1.9	3.0	-1.5	2.6
All-cause mortality rate, 90-day PDP	643	652	2.4%	1.5%	2.6%	1.9%	-0.2**	-3.1	2.8	-2.6	2.3
HHA ADL, improved bathing	197	159	89.2%	94.7%	82.9%	94.6%	-6.2	-14.2	1.8	-12.9	0.5
HHA ADL, improved ambulation	197	159	89.9%	90.5%	90.3%	91.3%	-0.4	-7.0	6.2	-5.9	5.2
HHA ADL, improved upper-body dressing	197	159	91.7%	96.5%	94.1%	90.9%	7.9	1.5	14.4	2.6	13.3
HHA ADL, improved lower-body dressing	197	159	90.3%	95.6%	93.6%	90.1%	8.8	2.3	15.4	3.3	14.3
HHA ADL, improved bed transferring	197	159	92.5%	92.8%	83.6%	87.4%	-3.5	-13.3	6.2	-11.7	4.7
SNF ADL, improved long-form (overall) function	103	65	71.4%	63.8%	59.6%	69.9%	-17.9	-43.9	8.1	-39.7	3.9
SNF ADL, improved early-loss (self-care) function	103	65	59.7%	45.0%	44.9%	53.7%	-23.4	-48.7	1.8	-44.6	-2.3

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
SNF ADL, improved mid-loss (mobility) function	103	65	57.6%	57.3%	54.1%	61.2%	-7.4	-24.3	9.6	-21.6	6.8
IRF ADL, average change in mobility score[3]	82	62	9.5	12.1	9.2	10.6	1.2	-1.0	3.4	-0.6	3.0
IRF ADL, average change in self-care score[3]	82	62	12.5	14.1	12.0	13.8	-0.2	-2.7	2.4	-2.3	2.0

[1] Does not include payments for readmissions that are explicitly excluded from the BPCI episode.
[2] Dependent on having at least one day or visit in the given setting
[3] A positive value indicates improvement
**There was insufficient sample during the baseline period to test if the BPCI and comparison providers were on parallel trends for this outcome. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Exhibit S.2: Major Joint Replacement of the Lower Extremity Episodes, Model 4 ACH, Q4 2011 - Q3 2015

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Total allowed payment amount, IP through 90-day PDP	3,301	3,334	$27,735	$26,931	$29,582	$28,551	$226	-$1,000	$1,453	-$803	$1,255
Total amount included in the bundle definition	3,346	3,351	$16,317	$15,491	$16,244	$15,684	-$266	-$584	$52	-$533	$1
Total amount not included in bundle definiton[1]	3,329	3,325	$7,082	$7,232	$8,404	$8,133	$421	-$175	$1,017	-$79	$922
Allowed payment amount for Part B services, 30 days pre-bundle	3,346	3,351	$834	$803	$928	$859	$38	-$41	$116	-$28	$104
Total allowed amount, IP stays, 30 days post-bundle	3,247	3,276	$397	$541	$506	$653	-$4	-$252	$244	-$212	$204
Total allowed amount, IP stays, 90 days post-bundle	2,838	2,881	$1,332	$1,496	$1,487	$1,633	$18	-$441	$477	-$367	$403
Total allowed amount, IP stays, 120 days post-bundle	2,417	2,475	$1,704	$1,797	$1,843	$2,072	-$136	-$645	$373	-$563	$291
Total allowed amount, IP stays, 180 days post-bundle	2,387	2,457	$2,403	$2,471	$2,744	$3,030	-$219	-$845	$407	-$744	$307
Total allowed amount not included in bundle, 30 days post-bundle	3,247	3,276	$2,320	$2,002	$2,550	$2,370	-$139	-$403	$126	-$361	$83
Total allowed amount not included in bundle, 90 days post-bundle	2,838	2,881	$5,057	$4,546	$5,739	$5,325	-$97	-$714	$520	-$615	$421
Total allowed amount not included in bundle, 120 days post-bundle	2,417	2,475	$5,742	$5,268	$6,447	$6,097	-$125	-$796	$547	-$688	$439
Total allowed amount not included in bundle, 180 days post-bundle	2,387	2,457	$7,296	$6,587	$8,230	$7,899	-$377	-$1,101	$348	-$985	$232
Inpatient anchor stay standardized allowed amount	3,358	3,370	$13,070	$12,746	$13,060	$12,717	$20	-$56	$95	-$43	$83
Readmissions standardized allowed amount, 90-day PDP	3,296	3,327	$1,337	$1,350	$1,376	$1,470	-$82	-$485	$322	-$420	$257
SNF standardized allowed amount, 90-day PDP	3,296	3,327	$5,227	$4,905	$5,806	$5,464	$20	-$753	$792	-$629	$668
IRF standardized allowed amount, 90-day PDP	3,296	3,327	$1,214	$1,406	$1,917	$2,010	$99	-$363	$560	-$288	$486
HHA standardized allowed amount, 90-day PDP	3,296	3,327	$1,761	$1,807	$2,243	$1,973	$316	$46	$586	$89	$543

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
Therapy standardized allowed amount, 90-day PDP	3,284	3,308	$666	$395	$790	$650	-$130	-$223	-$38	-$208	-$53
Imaging and laboratory services standardized allowed amount, 90-day PDP	3,284	3,308	$264	$263	$282	$287	-$7	-$37	$23	-$32	$19
Procedures standardized allowed amount, 90-day PDP	3,284	3,308	$278	$257	$288	$279	-$12	-$60	$37	-$53	$29
Evaluation and management standardized allowed amount, 90-day PDP	3,284	3,308	$620	$625	$759	$765	-$1	-$69	$67	-$58	$56
Other institutional services standardized allowed amount, 90-day PDP	3,284	3,308	$304	$368	$291	$389	-$35	-$122	$53	-$108	$39
Other non-institutional services standardized allowed amount, 90-day PDP	3,284	3,308	$194	$193	$242	$233	$10	-$46	$65	-$37	$56
Anchor inpatient length of stay	3,379	3,379	4.5	4.0	4.6	4.2	-0.1	-0.3	0.1	-0.3	0.1
Number of institutional PAC days, 90-day PDP[2]	1,508	1,521	22.9	22.4	22.4	23.5	-1.6	-3.3	0.2	-3.0	-0.1
Number of SNF days, 90-day PDP[2]	1,147	1,295	23.9	23.6	25.0	26.1	-1.4	-3.5	0.8	-3.2	0.4
Number of HHA visits, 90-day PDP[2]	2,030	1,755	16.0	16.9	16.2	16.2	0.8	-0.6	2.1	-0.4	1.9
Patients discharged to PAC	3,341	3,344	67.4%	72.6%	80.8%	77.1%	8.9	3.5	14.3	4.3	13.5
Patients discharged to institutional PAC (of those who received PAC)	2,585	2,439	64.9%	64.1%	62.4%	57.6%	4.0	-5.1	13.0	-3.6	11.6
Emergency department use, 30-day PDP	3,341	3,344	7.4%	7.9%	6.1%	7.3%	-0.7	-2.6	1.1	-2.3	0.8
Emergency department use, 90-day PDP	3,296	3,327	12.8%	14.8%	12.2%	14.5%	-0.3*	-3.0	2.5	-2.6	2.0
Unplanned readmission rate, 30-day PDP	3,341	3,344	5.8%	4.0%	5.3%	5.4%	-1.8	-3.4	-0.3	-3.2	-0.5
Unplanned readmission rate, 90-day PDP	3,296	3,327	9.1%	7.2%	8.8%	9.4%	-2.5	-4.7	-0.2	-4.4	-0.6
All-cause mortality rate, 30-day PDP	3,299	3,331	0.9%	0.7%	1.2%	1.1%	-0.2	-0.8	0.5	-0.7	0.4
All-cause mortality rate, 90-day PDP	3,257	3,314	1.7%	1.7%	2.0%	2.0%	-0.1	-1.0	0.8	-0.9	0.7
HHA ADL, improved bathing	942	823	89.8%	87.5%	91.5%	90.2%	-1.0	-5.0	2.9	-4.4	2.3
HHA ADL, improved ambulation	942	823	79.3%	76.5%	84.7%	84.0%	-2.1	-7.3	3.2	-6.5	2.4
HHA ADL, improved upper-body dressing	942	823	91.2%	89.3%	91.8%	92.3%	-2.4	-7.1	2.3	-6.4	1.6
HHA ADL, improved lower-body dressing	942	823	85.5%	84.8%	87.8%	86.7%	0.3	-4.0	4.6	-3.3	3.9

Outcome	Number of Intervention Episodes		BPCI		Comparison		DiD estimate				
	BPCI	Comparison	Baseline	Intervention	Baseline	Intervention	DiD	95% LCI	95% UCI	90% LCI	90% UCI
HHA ADL, improved bed transferring	942	823	75.4%	75.7%	81.8%	77.8%	4.3	-2.9	11.4	-1.7	10.2
SNF ADL, improved long-form (overall) function	970	937	71.7%	75.9%	69.0%	72.3%	0.8	-5.7	7.2	-4.6	6.2
SNF ADL, improved early-loss (self-care) function	973	937	54.3%	55.4%	53.0%	58.8%	-4.8	-11.9	2.3	-10.8	1.2
SNF ADL, improved mid-loss (mobility) function	963	937	69.2%	69.2%	63.9%	67.1%	-3.1	-9.8	3.5	-8.7	2.4
IRF ADL, average change in mobility score[3]	378	239	9.8	11.1	9.6	10.3	0.6	-0.4	1.7	-0.2	1.5
IRF ADL, average change in self-care score[3]	378	239	11.6	13.7	11.7	12.1	1.7	0.5	2.9	0.7	2.7

[1] Does not include payments for readmissions that are explicitly excluded from the BPCI episode.
[2] Dependent on having at least one day or visit in the given setting.
[3] A positive value indicates improvement.
* This might be a biased estimate because we rejected the null hypothesis that BPCI and matched comparison providers had parallel trends for this outcome (with 90% confidence), which is required for an unbiased estimate. Equal trends test was conducted for total allowed payment amount IP through 90-day PDP, emergency department visits, readmission, and mortality outcomes.

Appendix T: Clarification and Errata in October 2018 report

In October 2018, we incorporated minor edits in the report when describing pre-BPCI differences in payments between BPCI participants and non-participating providers. These edits included corrections of nine typos and clarifications of how we defined the key pre-BPCI payment measure as well as how we calculated its average across participants and non-participants. These edits do not qualitatively change the finding that BPCI participants had higher 2011 standardized Part A allowed payments than non-participating providers.

For each combination of Model and episode initiator type (e.g., hospital, skilled nursing facility (SNF)), we calculated the difference between the BPCI participants' average payments across clinical episodes weighted by the number of BPCI discharges for each clinical episode and the non-participating providers' average payments across clinical episodes weighted by the number of BPCI discharges for each clinical episode. These differences in weighted averages were quoted incorrectly resulting in corrections to five dollar figures and four percentages in three sections as listed below:

- Executive Summary, C. Results, page ES-4
    - "In 2011, BPCI-participating hospital EIs had standardized Part A payments that averaged $1,366 (7%) higher than payments for non-participating hospitals (among clinical episodes with sufficient sample size for evaluation)."
    - "BPCI-participating SNFs had 2011 standardized Part A payments that were $742 (3%) higher than payments for the same episodes for non-participating SNFs."
    - "HHAs had 2011 standardized Part A payments that were $263 (3%) higher than non-participants."
- III. Model 2 Results and Discussion, A. Characteristics of the initiative and participants, page 54
    - "BPCI-participating hospital EIs had higher standardized Part A payments for patients discharged with BPCI MS-DRGs in 2011 than non-participating hospitals (7% higher on average)."
- III. Model 2 Results and Discussion, A. Characteristics of the initiative and participants, page 56
    - "Across all clinical episodes, average 2011 standardized Part A payments were $1,366 (7%) higher among BPCI-participating hospitals than among non-participating hospitals."

We also revised how we referred to this measure throughout the narrative and exhibits in the report. We clarified that this measure is based on 2011 standardized Part A allowed payment amounts. For Model 2, it includes all Part A payments for the inpatient stay plus the 90 days post-discharge. For Model 3 SNFs, it includes all Part A payments during the 90 days following the SNF admission. For Model 3 home health agencies (HHAs), it includes all Part A payments during the 90 days following the start of home health. This resulted in revisions to how we define the measure in the text and exhibits in four sections:

- Executive Summary: page ES-4

- III. Model 2 Results and Discussion
  - A. Characteristics of the initiative and participants: pages 54, 56, and 58
  - E. Clinical Episode Issue Briefs: pages 141, 152, 169, 181, 187, 188, 223, 229, 230, 236, 237, 245, 252, 261
- IV. Model 3 Results and Discussion
  - A. Characteristics of the initiative and participants: pages 269, 271, 273, 274
  - D. Clinical episode issue brief chapters: pages 333, 344, 355, 371
- V. Model 4 Results and Discussion
  - A. Characteristics of the initiative and participants: pages 384, 385
  - D. Clinical episode issue brief chapters: page 406