

Appendix A: BPCI Clinical Groupings and DRGs

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

Episode	Exclusions List	Anchor														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Fractures of the femur and hip or pelvis	11	533	534	535	536											
Gastrointestinal hemorrhage	7	377	378	379												
Gastrointestinal obstruction	7	388	389	390												
Hip & femur procedures except major joint	2	480	481	482												
Lower extremity & humerus procedure except hip, foot, femur	2	492	493	494												
Major bowel procedure	10	329	330	331												
Major cardiovascular procedure	8	237	238													
Major joint replacement of the lower extremity	13	469	470													
Major joint replacement of the upper extremity	1	483	484													
Medical non-infectious orthopedic	11	537	538	551	552	553	554	555	556	557	558	559	560	561	562	563
Medical peripheral vascular disorders	6	299	300	301												
Nutritional and metabolic disorders	3	640	641													
Other knee procedures	2	485	486	487	488	489										
Other respiratory	5	189	204	205	206	207	208	186	187	188						
Other vascular surgery	8	252	253	254												
Pacemaker	9	242	243	244												
Pacemaker device replacement or revision	9	258	259	260	261	262										
Percutaneous coronary intervention	9	246	247	248	249	250	251									

Episode	Exclusions List	Anchor														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Red blood cell disorders	3	811	812													
Removal of orthopedic devices	2	495	496	497	498	499										
Renal failure	3	682	683	684												
Revision of the hip or knee	2	466	467	468												
Sepsis	3	870	871	872												
Simple pneumonia and respiratory infections	5	177	178	179	193	194	195									
Spinal fusion (non-cervical)	12	459	460													
Stroke	4	61	62	63	64	65	66									
Syncope & collapse	6	312														
Transient ischemia	4	69														
Urinary tract infection	3	689	690													

Appendix B: Glossary & 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). These Awardees may or may not be Medicare providers or initiate episodes themselves.
Baseline time period	The period of time that precedes the intervention period as a basis for comparison in difference-in-difference modeling. For the first BPCI intervention quarter analysis (Q4 2013), the baseline period spans from Q4 2010 through Q3 2013.
Beneficiary Incentive	This is one of the waivers an Awardee may participate in. This allows Awardees to offer patients certain incentives not tied to standard provision of health care.
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 that a bundle lasts; 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)	An Awardee that may, but is not required to be an episode initiator. This participant has other episode initiators under its BPCI initiative structure. This Awardee joined the initiative under a Facilitator Convener.
Designated Awardee (DA)	An Awardee and sole episode initiator. This Awardee joined the initiative under a Facilitator Convener.
EPI Start 30, 60, 90	The first 30, 60, or 90 days of the episode of care.
Episode Initiator (EI)	Under Models 2 and 4 an episode initiator is the participating hospital where the BPCI episode begins. Under Models 2 and 3 an episode initiator may be a participating physician group practice if one of its members is the patient’s admitting physician or surgeon for the anchor hospitalization. Under Model 3 an episode initiator is a participating SNF, HHA, IRF, or LTCH that admits the patient within 30 days following hospital discharge in a MS-DRG for the relevant clinical episodes.
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 practitioners who provide care to beneficiaries. Episodes start at EI-BPPOs, but these entities do not assume financial risk under the Model. They are associated with an AC or a DAC that assumes all financial risk.
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 Models 2 and 4, 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).
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 bear risk and does not have agreements with, or receive payments from, CMS.

Name	Definition
Gainsharing	This is one of the waivers an Awardee may participate in. 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.
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 <i>or</i> 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.

Name	Definition
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.
Post-episode monitoring period	The time period (up to 60 days) beyond the end of the episode to monitor for potential unintended consequences.
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 Awardee and the sole episode initiator.
Three-day SNF Waiver	This is one of the waivers an Awardee may participate in. 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
HRR	Hospital Referral Region
ICS	Internal Cost Saving
IPPS	Inpatient Prospective Payment System
IRF	Inpatient Rehabilitation Facility
LOS	Length of stay
LTC	Long Term Care
LTCH	Long Term Care Hospital
MBSF	Medicare Beneficiary Summary File
MS-DRG	Medicare Severity-adjusted Diagnosis Related Group

Acronym	Definition
NHC	Nursing Home Compare
NPRA	Net Payment Reconciliation Amount
NQF	National Quality Forum
OIP	Other Inpatient
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

Appendix F: Clinical Episodes of BPCI Participants

Participant: Current BPID	Participant: Role	Participant: CCN	Bundled Payment Episodes	Episode Length	Discount Rate	Episode Status	Participant Name	Episode PoP Start Date
2053-000	SA	450058	Major joint replacement of the lower extremity	30	3.0	Phase II	Baptist Medical Center	10/1/2013
3002-002	EI-BPPO	105645	Double joint replacement of the lower extremity	60	3.00%	Phase II	Brooks Bartram Crossing	10/1/2013
3002-002	EI-BPPO	105645	Fractures of the femur and hip or pelvis	60	3.00%	Phase II	Brooks Bartram Crossing	10/1/2013
3002-002	EI-BPPO	105645	Hip & femur procedures except major joint	60	3.00%	Phase II	Brooks Bartram Crossing	10/1/2013
3002-002	EI-BPPO	105645	Major joint replacement of the lower extremity	60	3.00%	Phase II	Brooks Bartram Crossing	10/1/2013
3002-002	EI-BPPO	105645	Revision of the hip or knee	60	3.00%	Phase II	Brooks Bartram Crossing	10/1/2013
3002-003	EI-BPPO	107628	Double joint replacement of the lower extremity	60	3.00%	Phase II	Brooks Home Care Advantage	10/1/2013
3002-003	EI-BPPO	107628	Fractures of the femur and hip or pelvis	60	3.00%	Phase II	Brooks Home Care Advantage	10/1/2013
3002-003	EI-BPPO	107628	Hip & femur procedures except major joint	60	3.00%	Phase II	Brooks Home Care Advantage	10/1/2013
3002-003	EI-BPPO	107628	Major joint replacement of the lower extremity	60	3.00%	Phase II	Brooks Home Care Advantage	10/1/2013
3002-003	EI-BPPO	107628	Revision of the hip or knee	60	3.00%	Phase II	Brooks Home Care Advantage	10/1/2013
3002-004	EI-BPPO	103039	Double joint replacement of the lower extremity	60	3.00%	Phase II	Brooks Rehabilitation Hospital	10/1/2013
3002-004	EI-BPPO	103039	Fractures of the femur and hip or pelvis	60	3.00%	Phase II	Brooks Rehabilitation Hospital	10/1/2013
3002-004	EI-BPPO	103039	Hip & femur procedures except major joint	60	3.00%	Phase II	Brooks Rehabilitation Hospital	10/1/2013
3002-004	EI-BPPO	103039	Major joint replacement of the lower extremity	60	3.00%	Phase II	Brooks Rehabilitation Hospital	10/1/2013

Participant: Current BPID	Participant: Role	Participant: CCN	Bundled Payment Episodes	Episode Length	Discount Rate	Episode Status	Participant Name	Episode PoP Start Date
3002-004	EI-BPPO	103039	Revision of the hip or knee	60	3.00%	Phase II	Brooks Rehabilitation Hospital	10/1/2013
2058-000	SA	360082	Major joint replacement of the lower extremity	30	3.00%	Phase II	Cleveland Clinic Health System	10/1/2013
3501-000	DA	245149	Congestive heart failure	90	3.00%	Phase II	Good Samaritan Society - Ambassador	10/1/2013
3501-000	DA	245149	Major joint replacement of the lower extremity	90	3.00%	Phase II	Good Samaritan Society - Ambassador	10/1/2013
3505-000	DA	435044	Congestive heart failure	90	3.00%	Phase II	Good Samaritan Society - Luther Manor	10/1/2013
3505-000	DA	435044	Major joint replacement of the lower extremity	90	3.00%	Phase II	Good Samaritan Society - Luther Manor	10/1/2013
3502-000	DA	245221	Congestive heart failure	90	3.00%	Phase II	Good Samaritan Society - Maplewood	10/1/2013
3502-000	DA	245221	Major joint replacement of the lower extremity	90	3.00%	Phase II	Good Samaritan Society - Maplewood	10/1/2013
3503-000	DA	435046	Congestive heart failure	90	3.00%	Phase II	Good Samaritan Society - Sioux Falls Center	10/1/2013
3503-000	DA	435046	Major joint replacement of the lower extremity	90	3.00%	Phase II	Good Samaritan Society - Sioux Falls Center	10/1/2013
3504-000	DA	435045	Congestive heart failure	90	3.00%	Phase II	Good Samaritan Society - Sioux Falls Village	10/1/2013
3504-000	DA	435045	Major joint replacement of the lower extremity	90	3.00%	Phase II	Good Samaritan Society - Sioux Falls Village	10/1/2013
2007-000	SA	050336	Major joint replacement of the lower extremity	30	3.00%	Phase II	Lodi Memorial Hospital Association, Inc.	10/1/2013
2065-002	EI-BPPO	200009	Coronary artery bypass graft	90	2.00%	Phase II	Maine Medical Center	10/1/2013
2804-000	DA	140209	Major bowel procedure	90	2.00%	Phase II	Methodist Medical Center of Illinois	10/1/2013
2106-000	DA	330214	Cardiac valve	90	2.00%	Phase II	New York University Hospitals Center	10/1/2013

Participant: Current BPID	Participant: Role	Participant: CCN	Bundled Payment Episodes	Episode Length	Discount Rate	Episode Status	Participant Name	Episode PoP Start Date
2106-000	DA	330214	Major joint replacement of the lower extremity	90	2.00%	Phase II	New York University Hospitals Center	10/1/2013
2106-000	DA	330214	Spinal fusion (non-cervical)	90	2.00%	Phase II	New York University Hospitals Center	10/1/2013
2070-023	EI-BPPO	390049	Acute myocardial infarction	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Amputation	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Cellulitis	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Cervical spinal fusion	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Congestive heart failure	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Chronic obstructive pulmonary disease, bronchitis, asthma	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Diabetes	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Double joint replacement of the lower extremity	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Fractures of the femur and hip or pelvis	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Gastrointestinal hemorrhage	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Gastrointestinal obstruction	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Hip & femur procedures except major joint	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Lower extremity and humerus procedure except hip, foot, femur	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Major bowel procedure	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Major joint replacement of the lower extremity	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Major joint replacement of the upper extremity	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Other respiratory	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Other vascular surgery	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Pacemaker	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013

Participant: Current BPID	Participant: Role	Participant: CCN	Bundled Payment Episodes	Episode Length	Discount Rate	Episode Status	Participant Name	Episode PoP Start Date
2070-023	EI-BPPO	390049	Revision of the hip or knee	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Sepsis	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Simple pneumonia and respiratory infections	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Transient ischemia	90	2.00%	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Complex non-cervical spinal fusion	90	2.0	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Removal of orthopedic devices	90	2.0	Phase II	St. Luke's Hospital	10/1/2013
2070-023	EI-BPPO	390049	Renal failure	90	2.0	Phase II	St. Luke's Hospital	10/1/2013
2070-028	EI-BPPO	310060	Acute myocardial infarction	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Amputation	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Atherosclerosis	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Cardiac arrhythmia	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Cellulitis	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Cervical spinal fusion	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Congestive heart failure	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Chronic obstructive pulmonary disease, bronchitis, asthma	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Diabetes	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Double joint replacement of the lower extremity	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Fractures of the femur and hip or pelvis	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013

Participant: Current BPID	Participant: Role	Participant: CCN	Bundled Payment Episodes	Episode Length	Discount Rate	Episode Status	Participant Name	Episode PoP Start Date
2070-028	EI-BPPO	310060	Gastrointestinal hemorrhage	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Hip & femur procedures except major joint	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Lower extremity and humerus procedure except hip, foot, femur	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Major bowel procedure	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Major cardiovascular procedure	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Major joint replacement of the upper extremity	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Medical non-infectious orthopedic	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Other knee procedures	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Other respiratory	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Other vascular surgery	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Pacemaker	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Red blood cell disorders	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Removal of orthopedic devices	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Renal failure	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Revision of the hip or knee	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Simple pneumonia and respiratory infections	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013

Participant: Current BPID	Participant: Role	Participant: CCN	Bundled Payment Episodes	Episode Length	Discount Rate	Episode Status	Participant Name	Episode PoP Start Date
2070-028	EI-BPPO	310060	Syncope & collapse	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Transient ischemia	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Urinary tract infection	90	2.00%	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Major joint replacement of the lower extremity	90	2.0	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2070-028	EI-BPPO	310060	Sepsis	90	2.0	Phase II	St. Luke's Hospital-Warren Campus	10/1/2013
2055-011	EI-BPPO	040007	Major joint replacement of the lower extremity	90	2.00%	Phase II	St. Vincent Infirmary Medical Center	10/1/2013
3002-005	EI-BPPO	106082	Double joint replacement of the lower extremity	60	3.00%	Phase II	St. Vincent Medical Center - Southside	10/1/2013
3002-005	EI-BPPO	106082	Fractures of the femur and hip or pelvis	60	3.00%	Phase II	St. Vincent Medical Center - Southside	10/1/2013
3002-005	EI-BPPO	106082	Hip & femur procedures except major joint	60	3.00%	Phase II	St. Vincent Medical Center - Southside	10/1/2013
3002-005	EI-BPPO	106082	Major joint replacement of the lower extremity	60	3.00%	Phase II	St. Vincent Medical Center - Southside	10/1/2013
3002-005	EI-BPPO	106082	Revision of the hip or knee	60	3.00%	Phase II	St. Vincent Medical Center - Southside	10/1/2013
4065-002	EI-BPPO	450033	Major joint replacement of the lower extremity	30	3.25%	Phase II	Valley Baptist Medical Center - Harlingen (VBMC-H)	10/1/2013

Appendix G: Comparison of Q42013 BPCI Participants to Comparison Group Providers

The series of tables in this appendix compare the BPCI providers to the final comparison group providers. Definitions of variables are included in Appendix I and also included in the last two tables of this document for easy reference.

Table G1: Model 2 Provider Characteristics

Characteristics	Model 2 - Awarded		Excluded Providers		Comparison Group	
	N	%	N	%	N	%
Ownership						
For Profit	1	11%	562	22%	118	20%
Government	0	0%	552	22%	0	0%
Non-Profit	8	89%	1,418	56%	465	80%
Urban/Rural						
Rural	0	0%	871	34%	0	0%
Urban	9	100%	1,661	66%	583	100%
Region						
Midwest	2	22%	586	23%	163	28%
Northeast	4	44%	403	16%	98	17%
South	2	22%	1,143	45%	146	25%
West	1	11%	400	16%	176	30%
Bed Count						
0 - 99	0	0%	1,125	44%	0	0%
100-249	4	44%	903	36%	265	45%
250+	5	56%	504	20%	318	55%
Surgical ICU Services						
Not Provided	4	44%	1,756	69%	289	50%
Provided	5	56%	776	31%	294	50%
ICU Services						
Not Provided	0	0%	360	14%	4	1%
Provided	9	100%	2,172	86%	579	99%
Coronary Care Services						
Not Provided	0	0%	1,040	41%	95	16%
Provided	9	100%	1,492	59%	488	84%
BPCI Qualifying Discharges 2013						
N	9		2,516		583	
Mean	4,320		1,665		3,048	
Average Spend per episode						
N	9		2,532		583	
Mean	\$20,127		\$17,120		\$19,261	
Occupancy Rate						
N	9		2,532		583	
Mean	61%		47%		59%	

Characteristics	Model 2 - Awarded		Excluded Providers		Comparison Group	
	N	%	N	%	N	%
Medicare Days Percent						
N	9		2,532		583	
Mean	43%		42%		36%	
Resident-Bed Ratio						
N	9		2,532		583	
Mean	0.14		0.06		0.10	
CBSA Median Household Income						
N	9		2,532		583	
Mean	\$52,499		\$48,306		\$53,008	
% MA Penetration						
N	9		2,532		583	
Mean	22.6		22.2		29.3	
PCPs per 10,000						
N	9		2,532		583	
Mean	60		53		63	
Specialists per 10,000						
N	9		2,532		583	
Mean	82		63		87	
SNF Beds per 10,000						
N	9		2,532		583	
Mean	455		454		389	
Herfindahl Index (market share)						
N	9		2,532		583	
Mean	0.19		0.37		0.17	

Source: Lewin analysis of Provider of Services 2013, Area Health Resource File 2010-2011, and 2013 Medicare claims data.

Table G2: Model 3 SNF Provider Characteristics

Characteristics	Model 3 - Awarded		Excluded Providers		Comparison Group	
	N	%	N	%	N	%
Ownership						
For Profit	0	0%	13,977	68%	0	0%
Government	0	0%	1,133	6%	0	0%
Non-Profit	7	100%	5,461	27%	43	100%
Urban/Rural						
Rural	0	0%	6,015	29%	0	0%
Urban	7	100%	14,556	71%	43	100%
Region						
Midwest	5	71%	6,329	31%	13	30%
Northeast	0	0%	3,455	17%	0	0%
South	2	29%	7,464	36%	30	70%
West	0	0%	8	0%	0	0%
Bed Count						
0 - 82	2	29%	8,359	41%	6	14%
83-142	4	57%	8,346	41%	24	56%
143+	1	14%	3,866	19%	13	30%
IRF in CBSA						
No	6	86%	14,495	70%	32	74%
Yes	1	14%	6,076	30%	11	26%
Speech Pathology Onsite						
No	1	14%	814	4%	0	0%
Yes	6	86%	19,757	96%	43	100%
Mental Health Onsite						
No	1	14%	5,213	25%	6	14%
Yes	6	86%	15,358	75%	37	86%
High Quality Score						
No	3	43%	9,620	47%	10	23%
Yes	4	57%	10,951	53%	33	77%
High Survey Score						
No	4	57%	15,511	75%	26	60%
Yes	3	43%	5,060	25%	17	40%
Hospital Based SNF						
No	6	86%	19,781	96%	39	91%
Yes	1	14%	790	4%	4	9%
BPCI Qualifying Discharges 2013						
N Providers	7		14,875		43	
Mean	457		99		242	

Characteristics	Model 3 - Awarded		Excluded Providers		Comparison Group	
	N	%	N	%	N	%
Nurse Hours per day per resident						
N	7		14,710		43	
Mean	4.3		4.1		4.7	
Occupancy Rate						
N	7		15,032		43	
Mean	85%		81%		89%	
CBSA Median Household Income						
N	7		20,370		43	
Mean	\$56,859		\$49,658		\$50,053	
% MA Penetration						
N	7		20,370		43	
Mean	24.41		23.04		31.98	
PCPs per 10,000						
N	7		20,370		43	
Mean	76.0		53.5		62.1	
Specialists per 10,000						
N	7		20,370		43	
Mean	93.1		66.0		69.8	
SNF Beds per 10,000						
N	7		20,370		43	
Mean	425.9		481.2		355.4	
Herfindahl Index (market share)						
N	7		20,568		43	
Mean	0.033		0.092		0.042	
Herfindahl Index (Market Share) Squared						
N	7		14,875		43	
Mean	0.0072		0.0198		0.0071	

Source: Lewin analysis of Provider of Services 2013, Area Health Resource File 2010-2011, and 2013 Medicare claims data.

Table G3: Model 3 HH Provider Characteristics

Characteristics	Model 3 - Awarded		Excluded Providers		Comparison Group	
	N	%	N	%	N	%
Ownership						
For Profit	0	0%	17,251	74%	165	86%
Government	0	0%	1,877	8%	0	0%
Non-Profit	1	100%	4,121	18%	26	14%
Urban/Rural						
Rural	0	0%	4,688	20%	11	6%
Urban	1	100%	18,561	80%	180	94%
Region						
Midwest	0	0%	6,073	26%	0	0%
Northeast	0	0%	2,003	9%	0	0%
South	1	100%	10,932	47%	191	100%
West	0	0%	6	0%	0	0%
BPCI Qualifying Discharges 2013						
N	1		10,704		191	
Mean	1,022		88		269	
Number of Employed Nurses in HHA						
N	1		23,249		191	
Mean	23.6		8.4		11.9	
Number of Home Health Aides in HHA						
N	1		23,249		191	
Mean	4.2		6.2		2.2	
CBSA Median Household Income						
N	1		22,308		179	
Mean	\$ 50,147		\$ 50,092		\$ 44,157	
% MA Penetration						
N	1		22,308		179	
Mean	18.38		24.05		29.93	
PCPs per 10,000						
N	1		22,308		179	
Mean	61.2		56.4		43.3	
Specialists per 10,000						
N	1		22,308		179	
Mean	79.9		70.8		56.1	
SNF Beds per 10,000						
N	1		22,308		179	
Mean	366.6		436.6		262.9	

Source: Lewin analysis of Provider of Services 2013, Area Health Resource File 2010-2011, and 2013 Medicare claims data.

Table G4: Model 3 IRF Provider Characteristics

Characteristics	Model 3 - Awarded		Excluded Providers		Comparison Group	
	N	%	N	%	N	%
Urban/Rural						
Rural	0	0%	45	10%	0	0%
Urban	1	100%	396	90%	10	100%
Region						
Midwest	0	0%	62	14%	0	0%
Northeast	0	0%	62	14%	0	0%
South	1	100%	258	59%	10	100%
West	0	0%	59	13%	0	0%
Bed Size						
0 to 49	0	0%	216	49%	2	20%
50 to 99	0	0%	178	40%	7	70%
100 to 199	1	100%	41	9%	1	10%
200+	0	0%	6	1%	0	0%
PAC Cases						
N	1		224		10	
Mean	1,332		461		661	
Number of Employed Nurses in IRF						
N	1		441		10	
Mean	87.2		19.6		28.2	
CBSA Median Household Income						
N	1		438		9	
Mean	\$ 50,147		\$ 49,158		\$ 43,448	
% MA Penetration						
N	1		438		9	
Mean	18.38		23.88		32.44	
PCPs per 10,000						
N	1		438		9	
Mean	61.2		57.7		40.3	
Specialists per 10,000						
N	1		438		9	
Mean	79.9		75.9		49.0	
SNF Beds per 10,000						
N	1		438		9	
Mean	366.6		461.6		250.5	

Source: Lewin analysis of Provider of Services 2013, Area Health Resource File 2010-2011, and 2013 Medicare claims data.

Table G5: Model 4 Provider Characteristics- ACHs

Characteristics	Model 4 - Awarded		Excluded Providers		Comparison Group	
	N	%	N	%	N	%
Ownership						
For Profit	1	100%	647	21%	33	100%
Government	0	0%	552	18%	0	0%
Non-Profit	0	0%	1,891	61%	0	0%
Urban/Rural						
Rural	0	0%	871	28%	0	0%
Urban	1	100%	2,219	72%	33	100%
Region						
Midwest	0	0%	751	24%	0	0%
Northeast	0	0%	505	16%	0	0%
South	1	100%	1,257	41%	33	100%
West	0	0%	577	19%	0	0%
Bed Count						
0 - 99	0	0%	1,125	36%	0	0%
100-249	0	0%	1,172	38%	0	0%
250+	1	100%	793	26%	33	100%
Surgical ICU Services						
Not Provided	0	0%	2,039	66%	10	30%
Provided	1	100%	1,051	34%	23	70%
ICU Services						
Not Provided	0	0%	364	12%	0	0%
Provided	1	100%	2,726	88%	33	100%
Coronary Care Services						
Not Provided	0	0%	1,134	37%	1	3%
Provided	1	100%	1,956	63%	32	97%
BPCI qualifying Discharges 2013						
N	1		3,074		33	
Mean	3,383		1,919		3,079	
Average Spend per episode						
N	1		3,090		33	
Mean	\$20,056		\$17,501		\$20,066	
Occupancy Rate						
N	1		3,090		33	
Mean	51%		49%		54%	
Medicare Days Percent						
N	1		3,090		33	
Mean	37%		41%		34%	
Resident-Bed Ratio						
N	1		3,090		33	
Mean	0.04		0.06		0.06	

Characteristics	Model 4 - Awarded		Excluded Providers		Comparison Group	
	N	%	N	%	N	%
CBSA Median Household Income						
N	1		3,090		33	
Mean	\$31,902		\$49,219		\$47,508	
% MA Penetration						
N	1		3,090		33	
Mean	20.9		23.5		28.6	
PCPs per 10,000						
N	1		3,090		33	
Mean	39		55		55	
Specialists per 10,000						
N	1		3,090		33	
Mean	46		67		78	
SNF Beds per 10,000						
N	1		3,090		33	
Mean	292		443		310	
Herfindahl Index (market share)						
N	1		3,090		33	
Mean	0.30		0.33		0.12	

Source: Lewin analysis of Provider of Services 2013, Area Health Resource File 2010-2011, and 2013 Medicare claims data.

Table G5: 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	2013 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
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

Variable Name	Definition	Model(s)	Source
Number of nurses	Number of nurses employed by a home health agency or inpatient rehab facility	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	2013 Medicare claims

Table G6: 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	2013 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	2013 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	2013 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	2013 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	2013 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	2013 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	2013 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	2013 Medicare claims

Variable Name	Definition	Model(s)	Source
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
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

Appendix H: Aggregation of Clinical Episodes

Episode Name	Episode #	Aggregate Level #3	Aggregate Level 3 Name	Aggregate Level #4	Aggregate Level 4 Name	Aggregate Level #5	Aggregate Level 5 Name
Major joint replacement of the upper extremity	1	1	surgical: Ortho, joint replacement and hip, femur or lower extremity procedure	1	Surgical: ortho excluding spine	1	Surgical: All
Amputation	2	2	Surgical: Ortho, other	1	Surgical: ortho excluding spine	1	Surgical: All
Urinary tract infection	4	3	non-surgical: metabolic disorders	2	Non-surgical: other medical	4	Non-surgical: Other
Stroke	5	6	Non-surgical: neurovascular	3	Non-surgical: neurovascular	2	Non-surgical: cardio and neurovascular
Chronic obstructive pulmonary disease, bronchitis, asthma	6	7	Chronic obstructive pulmonary disease, bronchitis, asthma	4	Non-surgical: respiratory	3	Non-surgical: respiratory and GI and surgical: GI
Coronary artery bypass graft	7	13	Surgical: Cardiac Non-Devices	7	Surgical: cardiovascular	1	Surgical: All
Major joint replacement of the lower extremity	8	18	Surgical: major joint replacement of lower extremity	1	Surgical: ortho excluding spine	1	Surgical: All
Percutaneous coronary intervention	9	14	Surgical: Cardiac Devices	7	Surgical: cardiovascular	1	Surgical: All
Pacemaker	10	14	Surgical: Cardiac Devices	7	Surgical: cardiovascular	1	Surgical: All
Cardiac defibrillator	11	14	Surgical: Cardiac Devices	7	Surgical: cardiovascular	1	Surgical: All
Pacemaker device replacement or revision	12	14	Surgical: Cardiac Devices	7	Surgical: cardiovascular	1	Surgical: All
AICD generator or lead	13	14	Surgical: Cardiac Devices	7	Surgical: cardiovascular	1	Surgical: All
Congestive heart failure	14	9	Non-surgical: congestive heart failure	5	Non-surgical: cardiovascular	2	Non-surgical: cardio and neurovascular
Acute myocardial infarction	15	10	Non-surgical: Major cardiovascular	5	Non-surgical: cardiovascular	2	Non-surgical: cardio and neurovascular
Cardiac arrhythmia	16	10	Non-surgical: Major cardiovascular	5	Non-surgical: cardiovascular	2	Non-surgical: cardio and neurovascular

Episode Name	Episode #	Aggregate Level #3	Aggregate Level 3 Name	Aggregate Level #4	Aggregate Level 4 Name	Aggregate Level #5	Aggregate Level 5 Name
Cardiac valve	17	13	Surgical: Cardiac Non-Devices	7	Surgical: cardiovascular	1	Surgical: All
Other vascular surgery	18	13	Surgical: Cardiac Non-Devices	7	Surgical: cardiovascular	1	Surgical: All
Major cardiovascular procedure	19	13	Surgical: Cardiac Non-Devices	7	Surgical: cardiovascular	1	Surgical: All
Gastrointestinal hemorrhage	20	12	Non-surgical and surgical: GI	6	Non-surgical and surgical: GI	3	Non-surgical: respiratory and GI and surgical: GI
Major bowel procedure	21	12	Non-surgical and surgical: GI	6	Non-surgical and surgical: GI	3	Non-surgical: respiratory and GI and surgical: GI
Fractures of the femur and hip or pelvis	22	15	Non-surgical: ortho	8	Non-surgical: ortho	4	Non-surgical: Other
Medical non-infectious orthopedic	23	15	Non-surgical: ortho	8	Non-surgical: ortho	4	Non-surgical: Other
Double joint replacement of the lower extremity	24	1	surgical: Ortho, joint replacement and hip, femur or lower extremity procedure	1	Surgical: ortho excluding spine	1	Surgical: All
Revision of the hip or knee	25	2	Surgical: Ortho, other	1	Surgical: ortho excluding spine	1	Surgical: All
Spinal fusion (non-cervical)	26	17	Surgical: Non-cervical spinal fusion	9	Surgical: spinal	1	Surgical: All
Hip & femur procedures except major joint	27	1	surgical: Ortho, joint replacement and hip, femur or lower extremity procedure	1	Surgical: ortho excluding spine	1	Surgical: All
Cervical spinal fusion	28	16	Surgical: Fusion-cervical spinal/back/neck	9	Surgical: spinal	1	Surgical: All
Other knee procedures	29	2	Surgical: Ortho, other	1	Surgical: ortho excluding spine	1	Surgical: All
Complex non-cervical spinal fusion	30	17	Surgical: Non-cervical spinal fusion	9	Surgical: spinal	1	Surgical: All
Combined anterior posterior spinal fusion	31	16	Surgical: Fusion-cervical spinal/back/neck	9	Surgical: spinal	1	Surgical: All
Back & neck except spinal fusion	32	16	Surgical: Fusion-cervical spinal/back/neck	9	Surgical: spinal	1	Surgical: All

Episode Name	Episode #	Aggregate Level #3	Aggregate Level 3 Name	Aggregate Level #4	Aggregate Level 4 Name	Aggregate Level #5	Aggregate Level 5 Name
Lower extremity and humerus procedure except hip, foot, femur	33	1	surgical: Ortho, joint replacement and hip, femur or lower extremity procedure	1	Surgical: ortho excluding spine	1	Surgical: All
Removal of orthopedic devices	34	2	Surgical: Ortho, other	1	Surgical: ortho excluding spine	1	Surgical: All
Sepsis	35	4	non-surgical: infection/sepsis	2	Non-surgical: other medical	4	Non-surgical: Other
Diabetes	36	3	non-surgical: metabolic disorders	2	Non-surgical: other medical	4	Non-surgical: Other
Simple pneumonia and respiratory infections	37	8	Non-surgical: Respiratory	4	Non-surgical: respiratory	3	Non-surgical: respiratory and GI and surgical: GI
Other respiratory	38	8	Non-surgical: Respiratory	4	Non-surgical: respiratory	3	Non-surgical: respiratory and GI and surgical: GI
Chest pain	39	11	Non-surgical: Minor cardiovascular	5	Non-surgical: cardiovascular	2	Non-surgical: cardio and neurovascular
Medical peripheral vascular disorders	40	11	Non-surgical: Minor cardiovascular	5	Non-surgical: cardiovascular	2	Non-surgical: cardio and neurovascular
Atherosclerosis	41	11	Non-surgical: Minor cardiovascular	5	Non-surgical: cardiovascular	2	Non-surgical: cardio and neurovascular
Gastrointestinal obstruction	42	12	Non-surgical and surgical: GI	6	Non-surgical and surgical: GI	3	Non-surgical: respiratory and GI and surgical: GI
Syncope & collapse	43	11	Non-surgical: Minor cardiovascular	5	Non-surgical: cardiovascular	2	Non-surgical: cardio and neurovascular
Renal failure	44	5	Non-surgical: Renal failure or Red blood cell disorders	2	Non-surgical: other medical	4	Non-surgical: Other
Nutritional and metabolic disorders	45	3	non-surgical: metabolic disorders	2	Non-surgical: other medical	4	Non-surgical: Other
Cellulitis	46	4	non-surgical: infection/sepsis	2	Non-surgical: other medical	4	Non-surgical: Other
Red blood cell disorders	47	5	Non-surgical: Renal failure or Red blood cell disorders	2	Non-surgical: other medical	4	Non-surgical: Other

Episode Name	Episode #	Aggregate Level #3	Aggregate Level 3 Name	Aggregate Level #4	Aggregate Level 4 Name	Aggregate Level #5	Aggregate Level 5 Name
Transient ischemia	48	6	Non-surgical: neurovascular	3	Non-surgical: neurovascular	2	Non-surgical: cardio and neurovascular
Esophagitis, gastroenteritis and other digestive disorders	49	12	Non-surgical and surgical: GI	6	Non-surgical and surgical: GI	3	Non-surgical: respiratory and GI and surgical: GI

Appendix I: Additional Variable Definitions

Exhibit I.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	2013 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	2013 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	2013 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	2013 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	2013 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	2013 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	2013 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	2013 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

Variable Name	Definition	Model(s)	Source
% Age 65+	Population estimate ages 65+ over total population estimate for a given CBSA	2, 3, 4	2011 AHRF county-level data
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 I.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	2013 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

Variable Name	Definition	Model(s)	Source
Speech Pathology onsite	Indicator of whether or not speech pathology services are provided onsite, according to the 2013 POS file.	3	2013 POS file
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	2013 Medicare claims

Exhibit I.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	Medicare Enrollment Database (EDB)
Gender	Percent of female patients	2, 3, 4	EDB
Eligible for Medicaid	Medicaid eligibility according to the Medicare Enrollment file	2, 3, 4	EDB
Disabled	Percent of patients who are disabled (not including ESRD), based on Medicare eligibility status from the Medicare Enrollment file	2, 3, 4	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	2010-2013 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	2010-2013 Medicare Claims

Variable Name	Definition	Model(s)	Source
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	2010-2013 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	2010-2013 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	2010-2013 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	2010-2013 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	2010-2013 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	2010-2013 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	2010-2013 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	2010-2013 Medicare Claims

Appendix I.4 - Crosswalk HCC Indicators to Risk Variable Group HCC (RV HCC)

Risk variable group label	CMS-CCs ⁴⁰	Description	Not adjusted for if only present on index admission (complication)
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	x
	111	Aspiration and specified bacterial pneumonias	x
	112	Pneumococcal pneumonia, emphysema, lung abscess	x
	113	Viral and unspecified pneumonia, pleurisy	x
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	x
	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 hematological disorders	
rv14	51-52	Drug and Alcohol disorders	
	51	Drug/alcohol psychosis	
	52	Drug/alcohol dependence	
rv15	54-56, 58, 60	Psychiatric comorbidity	
	54	Schizophrenia	

Risk variable group label	CMS-CCs ⁴⁰	Description	Not adjusted for if only present on index admission (complication)
	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	x
rv21	81-84, 89, 98, 99, 103- 106	Coronary atherosclerosis or angina, cerebrovascular disease	
	81	Acute myocardial infarction	x
	82	Unstable angina and other acute ischemic heart disease	x
	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	x
	105	Vascular disease	x
106	Other circulatory disease	x	
rv24	92, 93	Specified arrhythmias	
	92	Specified heart arrhythmias	
	93	Other heart rhythm and conduction disorders	
rv26	108	Chronic obstructive pulmonary disease	
rv27	109	Fibrosis of lung or other chronic lung disorders	
rv29	130	Dialysis Status	x
rv30	148-149	Ulcers	
	148	Decubitus ulcer	x
	149	Decubitus ulcer or chronic skin ulcer	

Risk variable group label	CMS-CCs ⁴⁰	Description	Not adjusted for if only present on index admission (complication)
rv31	2	Septicemia/shock	x
rv32	22-23	Disorders of fluid, electrolyte, acid-base	
	22	Other significant endocrine and metabolic disorders	x
	23	Disorders of fluid/electrolyte/acid-base	x
rv33	47	Iron deficiency	x
rv34	79	Cardio-respiratory failure or cardio-respiratory shock	x
rv39	131	Acute Renal failure	x
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 J: Outcome Definitions Related but Non- BPCI MD-DRGs and Outpatient APCs

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: AICD generator or lead			
245 AICD Generator Procedures	215 Other Heart Assist System Implant	314-316 Other Circulatory System Diagnoses with MCC/ with CC/without CC or MCC	0105 Repair/Revision/Removal of Pacemakers, AICDs, or Vascular Devices
265 AICD Lead Procedures	264 Other Circulatory System O.R. Procedures		0106 Insertion/Replacement/Repair of Pacemaker Generator, Leads, and/or Electrodes
			0107 Level I Implantation of Cardioverter-Defibrillators (ICDs)
			0108 Level II Implantation of Cardioverter-Defibrillators (ICDs)
Episode Description: Cardiac defibrillator			
222-223 Cardiac Defibrillator Implant with Cardiac Catheterization with Acute Myocardial Infarction/ Heart Failure/Shock with MCC/ without MCC	215 Other Heart Assist System Implant	314-316 Other Circulatory System Diagnoses with MCC/ with CC/without CC or MCC	0107 Level I Implantation of Cardioverter-Defibrillators (ICDs)
224-225 Cardiac Defibrillator Implant with Cardiac Catheterization without Acute Myocardial Infarction/ Heart Failure/Shock with MCC/ without MCC	264 Other Circulatory System O.R. Procedures		0108 Level II Implantation of Cardioverter-Defibrillators (ICDs)
226-227 Cardiac Defibrillator Implant without Cardiac Catheterization with MCC/ without MCC			
Episode Description: Pacemaker			
242-244 Permanent Cardiac Pacemaker Implant with MCC/ with CC/without CC or MCC	215 Other Heart Assist System Implant	314-316 Other Circulatory System Diagnoses with MCC/with CC/without CC or MCC	0089 Insertion/Replacement of Permanent Pacemaker and Electrodes
	264 Other Circulatory System O.R. Procedures		0090 Level I Insertion/ Replacement of Permanent Pacemaker
			0105 Repair/Revision/Removal of Pacemakers, AICDs, or Vascular Devices

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
			0106 Insertion/Replacement/ Repair of Pacemaker Generator, Leads, and/or Electrodes
			0108 Level II Implantation of Cardioverter-Defibrillators (ICDs)
			0654 Level II Insertion/ Replacement of Permanent Pacemaker
			0655 Insertion/Replacement/ Conversion of a Permanent Dual Chamber Pacemaker or Pacing Electrode
Episode Description: Pacemaker device replacement or revision			
258-259 Cardiac Pacemaker Device Replacement with MCC/ without MCC	215 Other Heart Assist System Implant	314-316 Other Circulatory System Diagnoses with MCC/with CC/without CC or MCC	0089 Insertion/Replacement of Permanent Pacemaker and Electrodes
260-262 Cardiac Pacemaker Revision Except Device Replacement with MCC/with CC/without CC or MCC	264 Other Circulatory System O.R. Procedures		0090 Level I Insertion/ Replacement of Permanent Pacemaker
			0105 Repair/Revision/Removal of Pacemakers, AICDs, or Vascular Devices
			0106 Insertion/Replacement/ Repair of Pacemaker Generator, Leads, and/or Electrodes
			0108 Level II Implantation of Cardioverter-Defibrillators (ICDs)
			0654 Level II Insertion/ Replacement of Permanent Pacemaker
			0655 Insertion/Replacement/ Conversion of a Permanent Dual Chamber Pacemaker or Pacing Electrode

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Percutaneous coronary intervention			
246-247 Percutaneous Cardiovascular Procedure with Drug-Eluting Stent with MCC or 4+ Vessels/Stents or without MCC	286-287 Circulatory Disorders Except Acute Myocardial Infarction, with Cardiac Catheterization with MCC/without MCC	311 Angina Pectoris	0082 Coronary or Non-Coronary Atherectomy
248-249 Percutaneous Cardiovascular Procedure with Non Drug-Eluting Stent with MCC or 4+ Vessels/Stents or without MCC		314-316 Other Circulatory System Diagnoses with MCC/with CC/without CC/ MCC	0083 Coronary Angioplasty, Valvuloplasty, and Level I Endovascular Revascularization of the Lower Extremity
250-251 Percutaneous Cardiovascular Procedure without Coronary Artery Stent with MCC/without MCC			0104 Transcatheter Placement of Intracoronary stents
Episode Description: Coronary artery bypass graft			
231-232 Coronary Bypass with PTCA with MCC/without MCC	228-230 Other Cardiothoracic Procedures with MCC/ with CC/without CC/MCC	302-303 Atherosclerosis with MCC/without MCC	
233-234 Coronary Bypass with Cardiac Catheterization with MCC/without MCC		311 Angina Pectoris	
235-236 Coronary Bypass without Cardiac Catheterization with MCC/without MCC		314-316 Other Circulatory System Diagnoses with MCC/with CC/without CC/MCC	
Episode Description: Cardiac valve			
216-218 Cardiac Valve and Other Major Cardiothoracic Procedures with Cardiac Catheterization with MCC/with CC/without CC/MCC	228-230 Other Cardiothoracic Procedures with MCC/with CC/without CC/MCC		0082 Coronary or Non-Coronary Atherectomy
219-221 Cardiac Valve and Other Major Cardiothoracic Procedures without Cardiac Catheterization with MCC/with CC/without CC/MCC	314-316 Other Circulatory System Diagnoses with MCC/with CC/without CC/MCC		0083 Coronary Angioplasty, Valvuloplasty, and Level I Endovascular Revascularization of the Lower Extremity

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Major cardiovascular procedure			
237-238 Major Cardiovascular Procedures with MCC/without MCC	215 Other Heart Assist System Implant	299-301 Peripheral Vascular Disorders with MCC/with CC/without CC/MCC	
	228-230 Other Cardiothoracic Procedures with MCC/with CC/without CC/MCC	311 Angina Pectoris	
		314-316 Other Circulatory System Diagnoses with MCC/with CC/without CC/MCC	
Episode Description: Other vascular surgery			
252-254 Other Vascular Procedures with MCC/with CC/without CC/MCC	034-036 Carotid Artery Stent Procedure with MCC/with CC/without CC/MCC	299-301 Peripheral Vascular Disorders with MCC/with CC/without CC/MCC	0082 Coronary or Non-Coronary Atherectomy
	037-039 Extracranial Procedures with MCC/with CC/without CC/MCC	314-316 Other Circulatory System Diagnoses with MCC/with CC/without CC/MCC	0083 Coronary Angioplasty, Valvuloplasty, and Level I Endovascular Revascularization of the Lower Extremity
	228-230 Other Cardiothoracic Procedures with MCC/ with CC/without CC/MCC		0088 Thrombectomy
	263 Vein Ligation and Stripping		0115 Cannula/Access Device Procedures
	264 Other Circulatory System O.R. Procedures		0219 Vascular Ligation
	356-358 Other Digestive System O.R. Procedures with MCC/with CC/without CC/MCC		0229 Level II Endovascular Revascularization of the Lower Extremity
			0279 Level II Angiography and Venography
			0280 Level III Angiography and Venography
			0319 Level III Endovascular Revascularization of the Lower Extremity
			0623 Level III Vascular Access Procedures
			0653 Vascular Reconstruction/ Fistula Repair with Device

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
			0687 Revision/Removal of Neurostimulator Electrodes
			0688 Revision/Removal of Neurostimulator Pulse Generator Receiver
Episode Description: Acute myocardial infarction			
280-282 Acute Myocardial Infarction, Discharged Alive with MCC/with CC/without CC/MCC	283-285 Acute Myocardial Infarction, Expired with MCC/with CC/without CC/MCC		0080 Diagnostic Cardiac Catheterization
	296-298 Cardiac Arrest, Unexplained with MCC/with CC/without CC/MCC		
	311 Angina Pectoris		
	314-316 Other Circulatory System Diagnoses with MCC/with CC/without CC/MCC		
Episode Description: Cardiac arrhythmia			
308-310 Cardiac Arrhythmia and Conduction Disorders with MCC/with CC/without CC/MCC			0084 Level I Electrophysiologic Procedures
			0085 Level II Electrophysiologic Procedures
			0679 Level II Resuscitation and Cardioversion
Episode Description: Congestive heart failure			
291-293 Heart Failure and Shock with MCC/with CC/ without CC/MCC	314-316 Other Circulatory System Diagnoses with MCC/with CC/without CC/MCC		
	186-188 Pleural effusion with MCC/with CC/ without CC/MCC		
Episode Description: Atherosclerosis			
302-303 Atherosclerosis with MCC/without MCC	304-305 Hypertension with MCC/without MCC	311 Angina Pectoris	0080 Diagnostic Cardiac Catheterization
		313 Chest Pain	

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Chest pain			
313 Chest Pain	311 Angina Pectoris	302-303 Atherosclerosis with MCC/without MCC	0080 Diagnostic Cardiac Catheterization
Episode Description: Medical peripheral vascular disorders			
299-301 Peripheral Vascular Disorders with MCC/with CC/ without CC/MCC	314-316 Other Circulatory System Diagnoses with MCC/with CC/without CC/MCC		0267 Level III Diagnostic/ Screening Ultrasound
	294 -295 Deep Vein Thrombophlebitis with CC/MCC/without CC/ MCC		
Episode Description Syncope & collapse:			
312 Syncope and Collapse	149 Dysequilibrium		
	640-641 Miscellaneous Disorders of Nutrition, Metabolism, and Fluids and Electrolytes with MCC/without MCC		
Episode Description: Stroke			
061-063 Acute Ischemic Stroke with Use of Thrombolytic Agent with MCC/with CC/without CC/ MCC	020-022 Intracranial Vascular Procedures with Principal Diagnosis of Hemorrhage with MCC/ with CC/without CC/MCC		
064-066 Intracranial Hemorrhage or Cerebral Infarction with MCC/with CC/ without CC/MCC	023-024 Craniotomy with Major Device Implant/Acute Complex Central Nervous System Principal Diagnosis with MCC or Chemo Implant/ without MCC		
	025-027 Craniotomy and Endovascular Intracranial Procedures with MCC/ with CC/without CC/MCC		

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
	067-068 Nonspecific Cerebrovascular Accident and Precerebral Occlusion without Infarction with MCC/ without MCC		
	070-072 Nonspecific Cerebrovascular Disorders with MCC/with CC/without CC/MCC		
Episode Description: Transient ischemia			
069 Transient Ischemia	070-072 Nonspecific Cerebrovascular Disorders with MCC /with CC/without CC/MCC		
Episode Description: Gastrointestinal hemorrhage			
377-379 GI Hemorrhage with MCC/with CC/without CC/MCC	380-382 Complicated Peptic Ulcer with MCC/ with CC/without CC/MCC		
	383-384 Uncomplicated Peptic Ulcer with MCC/ without MCC		
Episode Description: Major bowel procedure			
329-331 Major Small and Large Bowel Procedures with MCC/ with CC/without CC/MCC	332-334 Rectal Resection with MCC/with CC/ without CC/MCC	371-373 Major Gastrointestinal Disorders and Peritoneal Infections with MCC/with CC/without CC/MCC	
	356-358 Other Digestive System O.R. Procedures with MCC/with CC/without CC/MCC	374-376 Digestive Malignancy with MCC/with CC/without CC/MCC	
Episode Description: Gastrointestinal obstruction			
388-390 GI Obstruction with MCC/with CC/with CC/MCC	393-395 Other Digestive System Diagnoses with MCC/with CC/without CC/MCC		

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Chronic obstructive pulmonary disease, bronchitis, asthma			
190-192 Chronic Obstructive Pulmonary Disease with MCC/with CC/without CC/MCC	196-198 Interstitial Lung Disease with MCC/with CC/without CC/MCC		0078 Level III Pulmonary Treatment
202-203 Bronchitis and Asthma with CC/MCC/without CC/MCC	204 Respiratory Signs and Symptoms		
Episode Description: Other respiratory			
186-189 Pleural Effusion with MCC/with CC/without CC/MCC	175-176 Pulmonary Embolism with MCC/ without MCC		0078 Level III Pulmonary Treatment
204 Respiratory Signs and Symptoms	189 Pulmonary Edema and Respiratory Failure		
205-206 Other Respiratory System Diagnoses with MCC/ without MCC			
207-208 Respiratory System Diagnosis with Ventilator Support 96+ Hours/<96 Hours			
Episode Description: Esophagitis, gastroenteritis and other digestive disorders			
391-392 Esophagitis, Gastroenteritis and Miscellaneous Digestive Disorders with MCC/without MCC	393-395 Other Digestive System Diagnoses with MCC/with CC/ without CC/MCC		
Episode Description: Sepsis			
870 Septicemia or Severe Sepsis with Mechanical Ventilation 96+ Hours	862-863 Postoperative and Posttraumatic Infections with MCC/ without MCC	689-690 Kidney and Urinary Tract Infections with MCC/without MCC	
871-872 Septicemia or Severe Sepsis without Mechanical Ventilation 96+ Hours with MCC/without MCC	864 Fever		
	865-866 Viral Illness with MCC/without MCC		
	867-869 Other Infectious and Parasitic Diseases Diagnoses with MCC/with CC/without CC/MCC		

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Urinary tract infection			
689-690 Kidney and Urinary Tract Infections with MCC/ without MCC	695-696 Kidney and Urinary Tract Signs and Symptoms with MCC/ without MCC	870 Septicemia or Severe Sepsis with Mechanical Ventilation 96+ Hours	
		871-872 Septicemia or Severe Sepsis without Mechanical Ventilation 96+ Hours with MCC/ without MCC	
Episode Description: Cellulitis			
602-603 Cellulitis with MCC/without MCC			0006 Level I Incision & Drainage
			0007 Level II Incision & Drainage
			0008 Level III Incision and Drainage
			0015 Level III Debridement & Destruction
			0016 Level IV Debridement & Destruction
Episode Description: Simple pneumonia and respiratory infections			
177-179 Respiratory Infections and Inflammations with MCC/ with CC/ without CC/MCC	204 Respiratory Signs and Symptoms		0078 Level III Pulmonary Treatment
193-195 Simple Pneumonia and Pleurisy with MCC/with CC/without CC/MCC			
Episode Description: Fractures of the femur and hip or pelvis			
533-534 Fractures of Femur with MCC/without MCC	542-544 Pathological Fractures and Musculoskeletal and Connective Tissue Malignancy with MCC/ with CC/without CC/MCC		0050 Level II Musculoskeletal Procedures Except Hand and Foot
535-536 Fractures of Hip and Pelvis with MCC/without MCC			0129 Level I Closed Treatment Fracture
			0138 Level II Closed Treatment Fracture
			0139 Level III Closed Treatment Fracture
			0431 Level IV Closed Treatment Fracture

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Amputation			
239-241 Amputation for Circulatory System Disorders Except Upper Limb and Toe with MCC/with CC/without CC/MCC	579-581 Other Skin, Subcutaneous Tissue and Breast Procedures with MCC/with CC/without CC/MCC		0053 Level I Hand Musculoskeletal Procedures (for finger amputation only)
255-257 Upper Limb and Toe Amputation for Circulatory System Disorders with MCC/ with CC/without CC/MCC			0055 Level I Foot Musculoskeletal Procedures (for toe amputation only)
474-476 Amputation for Musculoskeletal System and Connective Tissue Disorders with MCC/with CC/without CC/ MCC			
616-618 Amputation of Lower Limb for Endocrine, Nutritional, and Metabolic Disorders with MCC/with CC/without CC/MCC			
Episode Description: Back & neck except spinal fusion			
490-491 Back and Neck Procedures Except Spinal Fusion with CC/MCC or Disc Device/ Neurostimulator/without CC/ MCC	028-030 Spinal Procedures with MCC/with CC or Spinal Neurostimulator/without CC/MCC		0039 Level I Implantation of Neurostimulator Generator
			0040 Level I Implantation/ Revision/Replacement of Neurostimulator Electrodes
			0061 Level II Implantation/ Revision/Replacement of Neurostimulator Electrodes
			0203 Level IV Nerve Injections
			0207 Level III Nerve Injections
			0208 Laminotomies and Laminectomies
			0688 Revision/Removal of Neurostimulator Pulse Generator Receiver

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Cervical spinal fusion			
471-473 Cervical Spinal Fusion with MCC/with CC/without CC/ MCC	028-030 Spinal Procedures with MCC/with CC or Spinal Neurostimulator/without CC/MCC	551-552 Medical Back Problems with MCC/ without MCC	0039 Level I Implantation of Neurostimulator Generator
			0208 Laminotomies and Laminectomies
Episode Description: Combined anterior posterior spinal fusion			
453-455 Combined Anterior/ Posterior Spinal Fusion with MCC/with CC/without CC/MCC	028-030 Spinal Procedures with MCC/ with CC or Spinal Neurostimulator/without CC/MCC	551-552 Medical Back Problems with MCC/without MCC	0039 Level I Implantation of Neurostimulator Generator
			0061 Level II Implantation/ Revision/Replacement of Neurostimulator Electrodes
			0208 Laminotomies and Laminectomies
Episode Description: Complex non-cervical spinal fusion			
456-458 Spinal Fusion Except Cervical with Spinal Curvature/ Malignancy/Infection or 9+ Fusions with MCC/with CC/ without CC/MCC	028-030 Spinal Procedures with MCC/ with CC or Spinal Neurostimulator/without CC/MCC	551-552 Medical Back Problems with MCC/without MCC	0039 Level I Implantation of Neurostimulator Generator
			0061 Level II Implantation/ Revision/Replacement of Neurostimulator Electrodes
			0208 Laminotomies and Laminectomies
Episode Description: Spinal fusion (non-cervical)			
459-460 Spinal Fusion Except Cervical with MCC/without MCC	028-030 Spinal Procedures with MCC/ with CC or Spinal Neurostimulator/without CC/MCC	551-552 Medical Back Problems with MCC/ without MCC	0039 Level I Implantation of Neurostimulator Generator
			0061 Level II Implantation/ Revision/Replacement of Neurostimulator Electrodes
			0208 Laminotomies and Laminectomies

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Double joint replacement of the lower extremity			
461-462 Bilateral or Multiple Major Joint Procedures of Lower Extremity with MCC/ without MCC	469-470 Major Joint Replacement or Reattachment of Lower Extremity with MCC/ without MCC	533-534 Fractures of Femur with MCC/without MCC	0047 Arthroplasty without Prosthesis
		535-536 Fractures of Hip and Pelvis with MCC/ without MCC	0048 Level I Arthroplasty or Implantation with Prosthesis
		537-538 Sprains, Strains, and Dislocations of Hip, Pelvis and Thigh with CC/MCC/without CC/ MCC	0425 Level II Arthroplasty or Implantation with Prosthesis
Episode Description: Major joint replacement of the lower extremity			
469-470 Major Joint Replacement or Reattachment of Lower Extremity with MCC/ without MCC		533-534 Fractures of Femur with MCC/without MCC	0047 Arthroplasty without Prosthesis
		535-536 Fractures of Hip and Pelvis with MCC/ without MCC	0048 Level I Arthroplasty or Implantation with Prosthesis
		537-538 Sprains, Strains, and Dislocations of Hip, Pelvis and Thigh with CC/ MCC/without CC/MCC	0425 Level II Arthroplasty or Implantation with Prosthesis
Episode Description: Major joint replacement of the upper extremity			
483-484 Major Joint and Limb Reattachment Procedures of Upper Extremity with CC/MCC/ without CC/MCC	507-508 Major Shoulder or Elbow Joint Procedures with CC/ MCC/without CC/MCC	562-563 Fractures, Sprains, Strains and Dislocations Except Femur, Hip, Pelvis and Thigh with MCC/without MCC	0047 Arthroplasty without Prosthesis
	510-512 Shoulder, Elbow or Forearm Procedure, Except Major Joint Procedure with MCCwith CC/without CC/MCC	564-566 Other Musculoskeletal System and Connective Tissue Diagnoses with MCC/with CC/without CC/MCC	0048 Level I Arthroplasty or Implantation with Prosthesis
	513-514 Hand or Wrist Procedures, Except Major Thumb or Joint Procedures with CC/ MCC/without CC/MCC		0425 Level II Arthroplasty or Implantation with Prosthesis

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Hip & femur procedures except major joint			
480-482 Hip and Femur Procedures Except Major Joint with MCC/with CC/without CC/MCC	515-517 Other Musculoskeletal System and Connective Tissue O.R. Procedure with MCC/with CC/without CC/MCC	533-534 Fractures of Femur with MCC/without MCC	0041 Level I Arthroscopy
		535-536 Fractures of Hip and Pelvis with MCC/ without MCC	0042 Level II Arthroscopy
		537-538 Sprains, Strains, and Dislocations of Hip, Pelvis and Thigh with CC/MCC/without CC/ MCC	0045 Bone/Joint Manipulation Under Anesthesia
			0049 Level I Musculoskeletal Procedures Except Hand and Foot
			0050 Level II Musculoskeletal Procedures Except Hand and Foot
			0051 Level III Musculoskeletal Procedures Except Hand and Foot
Episode Description: Other knee procedures			
485-487 Knee Procedures with Principal Diagnosis of Infection with MCC/with CC/without CC/MCC	515-517 Other Musculoskeletal System and Connective Tissue O.R. Procedure with MCC/with CC/without CC/MCC	562-563 Fractures, Sprains, Strains and Dislocations Except Femur, Hip, Pelvis and Thigh with MCC/without MCC	0041 Level I Arthroscopy
488-489 Knee Procedures without Principal Diagnosis of Infection with CC/MCC/without CC/MCC		564-566 Other Musculoskeletal System and Connective Tissue Diagnoses with MCC/with CC/without CC/MCC	0042 Level II Arthroscopy
			0045 Bone/Joint Manipulation Under Anesthesia
			0047 Arthroplasty without Prosthesis
			0048 Level I Arthroplasty or Implantation with Prosthesis
			0051 Level III Musculoskeletal Procedures Except Hand and Foot

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
			0052 Level IV Musculoskeletal Procedures Except Hand and Foot
			0063 Level II Treatment Fracture/Dislocation
			0129 Level I Closed Treatment Fracture
			0139 Level III Closed Treatment Fracture
Episode Description: Lower extremity and humerus procedure except hip, foot, femur			
492-494 Lower Extremity and Humerus Procedures Except Hip, Foot, Femur with MCC/ with CC/without CC/MCC	515-517 Other Musculoskeletal System and Connective Tissue O.R. Procedure with MCC/with CC/without CC/MCC	535-536 Fractures of Hip and Pelvis with MCC/ without MCC	0020 Level II Excision and Biopsy
		537-538 Sprains, Strains, and Dislocations of Hip, Pelvis and Thigh with CC/ MCC/without CC/ MCC	0041 Level I Arthroscopy
			0042 Level II Arthroscopy
			0045 Bone/Joint Manipulation Under Anesthesia
			0050 Level II Musculoskeletal Procedures Except Hand and Foot
			0052 Level IV Muscos Procedure, except hand and foot
			0062 Level I Treatment Fracture/Dislocation
			0063 Level II Treatment Fracture/Dislocation
			0064 Level III Treatment Fracture/Dislocation
			0129 Level I Closed Treatment Fracture
			0138 Level II Closed Treatment Fracture
			0431 Level IV Closed Treatment Fracture

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Removal of orthopedic devices			
495-497 Local Excision and Removal Internal Fixation Devices Except Hip and Femur with MCC/with CC/without CC/MCC	515-517 Other Musculoskeletal System and Connective Tissue O.R. Procedure with MCC/ with CC/without CC/MCC	559-561 Aftercare, Musculoskeletal System and Connective Tissue with MCC/with CC/ without CC/MCC	0021 Level III Excision/ Biopsy
498-499 Local Excision and Removal Internal Fixation Devices of Hip and Femur with CC/MCC/without CC/MCC			0022 Level IV Excision/ Biopsy
			0049 Level I Musculoskeletal Procedures Except Hand and Foot
			0050 Level II Musculoskeletal Procedures Except Hand and Foot
			0139 Level III Closed Treatment Fracture
			0420 Level II Minor Procedures
Episode Description: Revision of the hip or knee			
466-468 Revision of Hip or Knee Replacement with MCC/ with CC/without CC/MCC	461-462 Bilateral or Multiple Major Joint Procedures of Lower Extremity with MCC/ without MCC		0047 Arthroplasty without Prosthesis
	469-470 Major Joint Replacement or Reattachment of Lower Extremity with MCC/ without MCC		0048 Level I Arthroplasty or Implantation with Prosthesis
	515-517 Other Musculoskeletal System and Connective Tissue O.R. Procedure with MCC/with CC/without CC/MCC		0425 Level II Arthroplasty or Implantation with Prosthesis
	559-561 Aftercare, Musculoskeletal System and Connective Tissue with MCC/with CC/ without CC/MCC		

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Diabetes			
637-639 Diabetes with MCC/with CC/without CC/MCC			0621 Level I Vascular Access Procedures
			0622 Level II Vascular Access Procedures
			0623 Level III Vascular Access Procedures
Episode Description: Renal failure			
682-684 Renal Failure with MCC/with CC/without CC/MCC	673-675 Other Kidney and Urinary Tract Procedures with MCC/ with CC/without CC/MCC		0088 Thrombectomy
	685 Admit for Renal Dialysis		0115 Cannula/Access Device Procedures
			0170 Dialysis
			0633 Level 3 Examinations & Related Services
			0652 Insertion of Intraoperative and Pleural Catheters
			0653 Vascular Reconstruction/ Fistula Repair with Device
			0676 Thrombolysis and Other Device Revisions
Episode Description: Nutritional and metabolic disorders			
640-641 Miscellaneous Disorders of Nutrition, Metabolism, and Fluids and Electrolytes with MCC/without MCC	643-645 Endocrine Disorders with MCC/with CC/without CC/MCC		
Episode Description: Red blood cell disorders			
811-812 Red Blood Cell Disorders with MCC/without MCC	813 Coagulation Disorders		
	814-816 Reticuloendothelial and Immunity Disorders with MCC/with CC/without CC/MCC		

MS-DRGs	Related BPCI MS-DRGs*	Related Medical DRGs	Similar Outpatient APCs‡
Episode Description: Medical non-infectious orthopedic			
537-538 Sprains, Strains, and Dislocations of Hip, Pelvis and Thigh with CC/MCC/without CC/MCC	533-534 Fractures of Femur with MCC/without MCC		
551-552 Medical Back Problems with MCC/without MCC	535-536 Fractures of Hip and Pelvis with MCC/ without MCC		
553-554 Bone Diseases and Arthropathies with MCC/without MCC	542-544 Pathological Fractures and Musculoskeletal and Connective Tissue Malignancy with MCC/ with CC/without CC/MCC		
555-556 Signs and Symptoms of Musculoskeletal System and Connective Tissue with MCC/ without MCC	545-547 Connective Tissue Disorders with MCC/with CC/without CC/MCC		
557-558 Tendonitis, Myositis and Bursitis with MCC/without MCC			
559-561 Aftercare, Musculoskeletal System and Connective Tissue with MCC/ with CC/without CC/MCC			
562-563 Fractures, Sprains, Strains and Dislocations Except Femur, Hip, Pelvis and Thigh with MCC/without MCC			

Appendix L: Qualitative Data Sources

Exhibit L.1: Characteristics of First Year Case Studies

BPID	BPCI Participant Name	City, State	Provider Type	BPCI Start Date	Region	Model	Convener Approach & Participant Role	Episode Focus	Gainsharing	SNF Waiver	Beneficiary Incentives	Surgical: ortho excluding spine	Non-surgical: other medical	Non-surgical: neurovascular	Non-surgical: respiratory	Non-surgical: cardiovascular	Non-surgical & surgical: GI	Surgical: cardiovascular	Non-surgical: ortho	Surgical: spinal
2106-000	New York University Hospitals Center	New York, NY	ACH	Oct 2013	North-east	2	Facilitator Convener/ Designated Awardee	Targeted	Yes, with MDs	Yes	Withdrew	Yes	0	0	0	0	0	Yes	0	Yes
3002-002	Brooks Bartram Crossing	Jacksonville, FL	SNF	Oct 2013	South	3	Awardee Convener/ Episode Initiator	Targeted	Yes, not with MDs	N/A	No	Yes	0	0	0	0	0	0	Yes	0
3002-005	St. Vincent Medical Center-Southside	Jacksonville, FL	SNF	Oct 2013	South	3	Awardee Convener/ Episode Initiator	Targeted	Yes, not with MDs	N/A	No	Yes	0	0	0	0	0	0	Yes	0
4065-002	Valley Baptist Medical Center - Harlingen (VBMC-H)	Harlingen, TX	ACH	Oct 2013	South	4	Awardee Convener/ Episode Initiator	Targeted	Yes, with MDs	N/A	No	Yes	0	0	0	0	0	0	0	0
3052-002	Golden Living Center Hy-Lond	Fresno, CA	SNF	Jan 2014	West	3	Awardee Convener/ Episode Initiator	Broad	Yes, with MDs	N/A	Yes	Yes	Yes	0	Yes	Yes	0	Yes	Yes	Yes
2074-001	Signature Medical Group, Inc.	Saint Louis, MO	PGP	Jan 2014	Mid-west	2	Awardee Convener	Targeted	Yes, with MDs	Yes	Yes	Yes	Yes	0	0	0	0	0	0	0

Exhibit L.2: Quarterly Awardee interviews held during April and May 2014

BPID	Awardee Name	Role	Number of Non-Awardee EIs	Gainsharing	State	Call Quarter
2007-000	Lodi Memorial Hospital Association, Inc.	SA	0	No	CA	April-14
2053-000	Baptist Medical Center	SA	0	Yes	TX	April-14
2055-001	Catholic Health Initiatives	AC	4	Yes	CO	April-14
2058-000	Cleveland Clinic Health System	AC	1	No	OH	April-14
2065-001	Maine Heart Center	AC	1	No	ME	April-14
2070-001	Remedy BPCI Partners, LLC	AC	17	Yes	CT	April-14
2804-000	Methodist Medical Center of Illinois	DA	0	Yes	IL	April-14
3501-000	Good Samaritan Society - Ambassador	DA	0	No	MN	April-14
3502-000	Good Samaritan Society - Maplewood	DA	0	No	MN	April-14
3503-000	Good Samaritan Society - Sioux Falls Center	DA	0	No	SD	April-14*
3504-000	Good Samaritan Society - Sioux Falls Village	DA	0	No	SD	April-14*
3505-000	Good Samaritan Society - Luther Manor	DA	0	No	SD	April-14*
4065-001	Valley Baptist Health System	AC	1	Yes	TX	April-14
2006-000	First Health Moore Regional Hospital	SA	0	Yes	NC	May-14
2010-000	The Rutland Hospital	SA	0	Yes	VT	May-14
2015-000	University of Alabama Hospital	SA	0	Yes	AL	May-14
2061-001	Health Choice Preferred Accountable Care LLC	AC	2	Yes	TN	May-14
2066-000	Meriter Hospital, Inc.	SA	0	Yes	WI	May-14
2069-001	North Shore LIJ Health Care Inc	AC	4	Yes	NY	May-14
2075-001	St Vincents Healthcare	AC	2	Yes	FL	May-14
2076-000	St. Mary Medical Center Langhorne PA	SA	0	No	PA	May-14
2079-001	VHS of Michigan - Detroit Medical Center	AC	4	Yes	MI	May-14
2102-000	Duke University Hospital	DA	0	Yes	NC	May-14
2302-000	Canton-Potsdam Hospital	DA	0	No	NY	May-14
2308-000	Pocono Medical Center	DA	0	No	PA	May-14
2313-000	Wentworth-Douglass Hospital	DA	0	No	NH	May-14
2408-001	AnewCare	DAC	3	Yes	TN	May-14

BPID	Awardee Name	Role	Number of Non-Awardee EIs	Gainsharing	State	Call Quarter
2411-000	Geisinger Wyoming Valley	DA	0	Yes	PA	May-14
2802-000	Billings Clinic	DA	0	No	MT	May-14
2807-000	Centra Health, Inc	DA	0	No	VA	May-14
3055-001	Chatsworth at Wellington Green, LLC	AC	0	Yes	FL	May-14
3201-000	Homefront Health Care	DA	0	No	RI	May-14
3204-000	Saint Elizabeth Manor	DA	0	No	RI	May-14
3401-001	PA Holdings - SNF, L.P.	DAC	5	Yes	MD	May-14
3601-000	Illinois Bone & Joint Institute, LLC	DA	0	Yes	IL	May-14
4003-000	Florida Hospital	SA	0	Yes	FL	May-14
4011-000	Methodist Hospital of Southern California	SA	0	Yes	CA	May-14

*Conducted one call with representation from each of these three Awardees

Appendix M: Quarterly Awardee Interview and Case Study Protocols

BPCI Awardee Interview Protocol March/April 2014 Awardee Interviews

Objective: Understand the reasons why Awardees decided to join BPCI and how/why they made certain decisions regarding participation in 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. Is your role new or was it created specifically to support BPCI?

B. Entry Decisions and BPCI Structure

1. What attracted you to the BPCI initiative?
 - a. Are you involved in any ACOs, medical homes, or other bundled payment type initiatives either through CMS, a state initiative or a private payor initiative? How did these experiences affect your decision to participate in BPCI?
 - b. *(If participating in gainsharing)* What about the gainsharing model seemed advantageous to you?
 - c. *(If not participating in gainsharing)* Why did you decide not to participate in gainsharing?
 - i. Will this influence your decision to gainshare in the future?
2. What types of partners, if any, did you involve in the decision to participate in the initiative?
 - a. What types of partnerships did you have with them?
 - b. Why did you involve them in the decision making process?
3. How did you select which model to participate in?
 - a. Whose leadership was critical to these decisions?
4. How did you select which DRGs to include?
 - a. Whose leadership was critical to these decisions?
5. How did you decide which episode lengths to include (30, 60, 90 days)?
 - a. Whose leadership was critical to these decisions?

6. Once you decided to participate in the initiative, what types of relationships, if any, did you establish with others outside of your provider network that might be “touching” BPCI patients (e.g., other BPCI episode initiating organizations, hospitals, other providers in the community, aging network organizations, community centers)?
 - a. How did you select these partners?
 - b. Did you need to establish new contracts with other providers?
 - c. What percent of your local providers are in your BPCI “network”?
 - d. Have you established any other formal or informal collaborations?
7. Is there anything else you would like to share with us about your decision to participate in the BPCI initiative or how you selected partners?

BPCI Awardee Interview Protocol May/June 2014 Awardee Calls

Objective: Understand the reasons why Awardees decided to join BPCI and how/why they made certain decisions regarding participation in 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. Do you have other responsibilities in addition to BPCI?
 - c. Have you established any new roles specifically to support BPCI?

B. Entry Decisions and BPCI Structure

1. What attracted you to the BPCI initiative?
 - a. Are you involved in any ACOs, medical homes, or other bundled payment type initiatives either through CMS, a state initiative or a private payor initiative? How did these experiences affect your decision to participate in BPCI?
 - b. *(If participating in gainsharing)* Why did you decide to participate in gainsharing?
 - c. *(If not participating in gainsharing)* Why did you decide not to participate in gainsharing?
 - i. Will this influence your decision to gainshare in the future?
2. When you first decided to participate in the initiative, what types of partners, if any, were involved in the decision?
 - a. What types of partnerships did you have with them during the decision making process?
 - b. Why did you involve them in the decision making process?
 - c. What is the nature of your ongoing relationship with these partners?

- d. Did you receive any outside analytical or IT support during the decision making process?
3. How did you select which model to participate in?
 - a. Whose leadership was critical to these decisions?
4. How did you select which episodes to include?
 - a. Whose leadership was critical to these decisions?
5. (*If participating in model 2 or 3*) How did you decide which episode lengths to include (30, 60, 90 days)?
 - a. Whose leadership was critical to these decisions?
6. Once you decided to participate in the initiative, did you establish relationships with other individuals or organizations to facilitate your participation in BPCI (e.g., other BPCI episode initiating organizations, hospitals, other providers in the community, aging network organizations, community centers)?
 - a. How did you select and establish relationships with these people?
 - b. What is the nature of these relationships?
7. Is there anything else you would like to share with us about your decision to participate in the BPCI initiative or how you selected partners?
8. Given that we likely will not have another call until next year, is there anything else you would like to share about your experience in the initiative so far?

BPCI Case Study Interview Protocol

I. Executive Leadership

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; this interview, because of its focus on leadership decisions and experience, may take 90 minutes. Thank you in advance for making the time to speak with us. You are welcome to prepare in advance for this discussion.

A. BPCI Entry Decisions and Structure

1. Overview of your BPCI approach. Please provide a brief overview of your BPCI initiative.
2. Entry Determinants: The next few questions focus on your organization's decisions to enroll in BPCI and how you have designed your intervention.
 - a. Why did your organization decide to participate in BPCI?
 - b. How did you select which of the four models to enroll in for your BPCI program?
 - c. How did you select which episode types, diagnostic groups, and episode lengths to include in your intervention?
 - d. Are you considering adding to or otherwise changing any of the episodes you have selected in the coming year?
 - e. What types of entities, if any, did you involve in the decision to participate and how did you select them as groups with whom you wanted to work?
 - f. Whose leadership was critical to these decisions to participate and the approach you have taken?
3. Expected Impacts from BPCI participation
 - a. What types of impact do you expect BPCI to have on the following operations and why?
 - i. Costs/case
 - ii. Quality of care
 - iii. Operational costs
 - iv. Other areas
 - b. Whose involvement is key to successfully achieving these impacts and why?

B. Experience with BPCI

1. BPCI Population
 - a. What proportion of your patients are in the BPCI program?
 - b. Do your BPCI enrollees differ from your other patient populations, and if so, how?
 - c. Have you had the volume of BPCI cases you expected?
 - d. How has this affected your planning or operations?
2. Network Development
 - a. What types of partners do you have in the BPCI initiative? Are they all part of your existing system? What is the nature of this partnership? (e.g., other episode initiators, possible referral sources, other providers who you work with to treat the beneficiary during their episode).
 - b. What proportion of your local healthcare market do these partners represent?
 - c. Have you established any relationships outside of your local healthcare network with community-based service organizations, (e.g., aging network organizations, community senior centers, others)? If so, with whom, and what effect has this had on your program?
 - d. What types of arrangements (formal or informal) did you have in place with your partners before implementation? Are you also establishing new network arrangements or have any plans to further develop any of these types of arrangements? Please explain.
 - i. Communications systems
 - ii. Data sharing systems
 - iii. Risk sharing payments
 - iv. Shared staffing arrangements
 - v. Minimum quality standards
 - vi. Protocols for clinical decision-making or other standardized approaches
 - vii. Other
 - e. How have these partnerships contributed to your success or challenges in the BPCI initiative? Has any one of them played a larger role than others?
 - f. If your organization is involved with BPCI as an initiator under an awardee or outside facilitator, how have these other organizations impacted your network under BPCI?

C. Market Effects

1. Roles in Local Market
 - a. What role does your organization play in the local healthcare market?
 - b. What type of broader involvement, if any, does the local market have with your initiative (public or provider education programs, marketing, other)? Has this been beneficial to you? If so, what effects has it had on the program?
 - c. What types of changes have you seen in your local market since your initiative started? Do you think that is related to your efforts? Why?
2. Impact of other health reform initiatives
 - a. Are you involved in any ACOs, medical homes, or other bundled payment type initiatives either through CMS, a state initiative or a private payor initiative? If so, please describe.
 - b. Are others in your local market involved in any of these initiatives? If so, has this had any impact on your decision to participate in BPCI, or the effects of BPCI? If so, how?

D. BPCI Success and Challenges

1. What types of implementation or outcomes successes have you had so far? Please describe.
 - a. Were these successes anticipated?
2. What types of challenges have you had so far?
 - b. Were these challenges expected or unexpected?
 - i. If expected, what steps (if any did you take) to prepare for these challenges?
 - c. How have you handled the challenges so far?
3. Given this experience, what types of changes are you considering in your approach and why?
4. What do you think would be important lessons from your experiences to share with other BPCI participants?

II. Care Redesign Leadership

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.

This interview will take 1 hour. We would like your perspective on how your care redesign initiative will impact patient care, how it differs from your prior treatment approaches, and what have been the challenges and successes of this redesign effort. Thank you in advance for making the time to speak with us. You are welcome to prepare in advance for this discussion.

A. Care Redesign Approach

1. Please describe your care redesign approach(es) – which of the following interventions, and the roles of each of the following: your physicians', other clinician's, the patient/family, others?
 - a. Redesign care pathways
 - b. Enhancements in care delivery
 - c. Patient activation, engagement, and risk management
 - d. Care coordination
 - e. System changes to support care
2. How and why did you select the particular care redesign interventions for your episodes?
3. Please describe the role, if any, the waivers under the BPCI program play in your design or planned implementation of your care redesign interventions.
4. Please describe where your organization currently is with respect to implementing your planned care redesign activities.
 - a. If you are in the planning or set up phases of your care redesign, when do you expect to begin the active phase of your implementation?
 - b. If you are already in the implementation phase, when did you go live?
5. How is your BPCI care redesign different from your prior service approaches? (new staff, new protocols, additional staff meetings, different case management activities, new relationships with others in the market, other activities)?

6. Were the redesign efforts incorporated in your current workflow processes? If so, how?
7. What types of challenges did these changes create and how have you handled them? What would you do differently to avoid/minimize these challenges?
8. If you have more than one redesign approach that you are working on currently, please describe the extent to which these different projects are intended to be coordinated/integrated as opposed to operating separately.

B. Key Implementation Factors

1. What would you describe as the key factors required for successful implementation of this initiative? (If you are involved in more than one care redesign implementation, please describe each initiative separately.)
 - a. Building an infrastructure to support successful implementation
 - b. Generating and using actionable data across the clinical episode
 - c. Improving the processes of care/care redesign
 - d. Meeting the terms/conditions of this initiative
2. Whose leadership was critical to the success of the approaches you have taken?
3. What new relationships either across system departments, or with others in the community, were needed to implement these changes?
4. What would you do differently if you were starting again?

C. Impact of Care Redesign Approach

1. What impact, if any, do you expect the care redesign to have on the following factors and why?
 - i. Patient outcomes
 - ii. Costs/case
 - iii. Operations
 - iv. Other areas
2. What impact do you think BPCI will have on patient flow?
3. Have you seen evidence of any of these expected impacts so far?

D. BPCI Success and Challenges

1. What types of implementation or outcomes successes have you had so far? Please describe.
 - d. Were these successes anticipated?

2. What types of challenges have you had so far?
 - a. Were these challenges expected or unexpected? If expected, what steps (if any) did you take to prepare for these challenges?
 - e. How have you handled the challenges so far?
3. Given this experience, what types of changes are you considering in your approach and why?
4. What do you think would be important lessons from your experiences to share with other BPCI participants?
5. Do you think your approach is easily replicable?
6. What factors were critical to your success?

III. Quality Management Leadership

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 initiative in this facility and how you think it has affected patient care.

This interview will take 1 hour. The purpose is to learn about the quality management practices you have put in place for the BPCI initiative. We are interested in learning about any new approaches for managing the quality of care across the episode of services. Thank you in advance for making the time to speak with us. You are welcome to prepare in advance for this discussion.

A. BPCI Quality Management Approaches

1. Please describe the role of quality management (if any) in your care redesign approach(es) under BPCI
2. Are the quality management activities included in any gainsharing or provider incentives?
3. What types of professionals are involved in your quality monitoring team (nurses, physicians, therapists, data managers, finance, operations, others)? Is this new because of the BPCI initiative?
4. How frequently does the quality monitoring team meet? Is this more/less frequent than pre-BPCI?
5. What information are you reviewing (length of stay, function scores, infection rates, expected outcome measures)?
6. What data sources are you using to produce the information for the team? Did these sources already exist or did your effort need to set up a new data system?
7. What data are you providing to your site clinicians, which types of clinicians, and how frequently?
8. Are these approaches different than your pre-BPCI quality monitoring approaches? If so, how?

B. Impact of BPCI Quality Management Practices

1. What changes in practice, outcomes, or clinical relationships, if any, are you seeing as a result of your quality monitoring process?
2. What types of challenges have you encountered in establishing/using this QM process? How have you addressed those challenges?
3. Given your experience thus far, what types of changes are you considering in your approach and why?
4. What do you think would be important lessons from your experiences to share with other BPCI participants?

C. Replicability

1. Do you think your approach is easily replicable? Why or why not?
2. What factors are critical to your success?

IV. Care Management Leadership

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 initiative in this facility and how you think it has affected patient care.

This interview will take 1 hour. The purpose is to learn about the care management practices you have put in place for the BPCI initiative. We are interested in learning about your challenges and successes in managing patients across an extended period of time, and outside of the service setting. Thank you in advance for making the time to speak with us. You are welcome to prepare in advance for this discussion.

A. The Role of Care Navigation/Case Management

1. What role do you play in the bundled payment initiative?
 - a. Patient-level coordination between acute-PAC settings
 - b. Patient-level coordination with primary care
 - c. Patient-level coordination with specialty care
 - d. Patient-level case management or navigation
 - e. Clinical follow-up with patient
 - f. Medication reconciliation
2. How is this different from past case management responsibilities?
3. How does patient navigation tie in with current case management roles/activities?

B. Care Navigation/Case Management Practices

1. How are you informed of the new BPCI enrollee?
2. When do you first “meet” the patient?
3. What materials, if any, do you provide the patient?
4. How often do you meet or talk with the patient during their 90 day episode?
5. Are you involved in patient conferences and discharge planning?
6. Do you report on your patient conferences to any part of the BPCI team? If so, how is that information used?
7. Please describe your role in influencing the patient’s care and treatment. To what extent, do you interact and communicate with physicians regarding specific patients?
8. Do you have any type of tracking mechanism for your BPCI patients throughout their episode? Please describe.

C. Key Implementation Factors

1. What would you describe as the key factors required for successful implementation of this initiative?
2. Whose leadership was critical to the success of the approach you have taken?
3. What new relationships, either across system departments or with others in the community, were needed to implement these changes?
4. What would you do differently if you were starting again?

D. Impact of Care Management Approach

1. How has the care management affected patient flow?
2. Do you think the care management has affected any of the following areas, and if so, in what way?
 - a. Patient outcomes (shorter term or longer term)
 - b. Individual length of stay
 - c. Types of services used
 - d. Costs/case
3. How has care management affected your organization’s operations? Did you need new types of staff, new ways of thinking, new relationships to be established, new areas of responsibility for patient discharge?
4. Has care management affected other areas of consideration?

E. Successes and Challenges

1. What types of implementation or outcomes successes have you seen so far?
2. What types of anticipated or unanticipated challenges have you encountered so far? How have you addressed those challenges?
3. Given this experience, what types of changes are you considering in your approach and why?
4. What do you think would be important lessons from your experiences to share with other BPCI participants?

F. Replicability

1. Do you think your approach is easily replicable? Why or why not?
2. What factors are critical to your success?

V. Care Redesign Operational Leadership

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 initiative in this facility and how you think it has affected patient care.

This interview will take 1 hour. The purpose is to learn about the care redesign practices you are carrying out in the BPCI initiative. We are interested in learning about your challenges and successes in these various efforts. Thank you in advance for making the time to speak with us. You are welcome to prepare in advance for this discussion.

A. The Role in Care Redesign

1. Please describe the care redesign activities in which you are involved.
2. How is the team for the implementation of this care redesign activity organized?
3. What role do you play in this team?
4. Is your position newly established for the BPCI initiative? If not, how does this work differ from your previous role in the organization?

B. If the care redesign effort is associated with care for a specific patient or patient family member:

1. How are you or your team informed of the new BPCI enrollee?
2. When do you first “meet” or get assigned to this the patient?
3. What is the nature of your interaction or the interaction of persons working under your management with the patient?
4. Do you report on your patient conferences to any part of the BPCI team or the patient’s physicians? If so, how is that information used?
5. Do you have any type of tracking mechanism for your BPCI patients throughout their episode? Please describe.

C. Key Implementation Factors

1. What would you describe as the key factors required for successful implementation of this initiative?
2. Whose leadership was critical to the success of the approach you have taken?
3. What new relationships, either across system departments or with others in the community, were needed to implement these changes?
4. What would you do differently if you were starting again?

D. Impact of Care Redesign Approach

1. How has the care redesign approach you are taking affected patient flow?
2. Do you think the care redesign approach has affected any of the following areas, and if so, in what way?
 - a. Patient outcomes (shorter term or longer term)
 - b. Individual length of stay
 - c. Types of services used
 - d. Costs/case
3. How has the care redesign approach affected your organization's operations? Did you need new types of staff, new ways of thinking, new relationships to be established, new areas of responsibility for patient discharge?
4. Has the care redesign approach affected other areas of consideration?

E. Successes and Challenges

1. What types of implementation or outcomes successes have you seen so far in implementing your care redesign initiative?
2. What types of anticipated or unanticipated challenges have you encountered so far in implementing your care redesign initiative? How have you addressed those challenges?
3. Given this experience, what types of changes are you considering in your approach and why?
4. What do you think would be important lessons from your experiences to share with other BPCI participants?

F. Replicability

1. Do you think your approach is easily replicable? Why or why not?
2. What factors are critical to your success so far?

VI. Finance Leadership

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 initiative in this facility and how you think it has affected patient care.

This interview will take 1 hour. The purpose is to learn about the cost management and financing practices you have put in place for the BPCI initiative. We are interested in learning about your challenges and successes in managing the costs and payments for these patients across an extended period of time, and outside of the service setting. Thank you in advance for making the time to speak with us. You are welcome to prepare in advance for this discussion.

A. BPCI Entry Determinants

1. Why did your organization decide to participate in BPCI? Did you see any financial advantages to participating?
2. Were you involved in the selection of which models and episode groups your organization chose to enroll in the BPCI program? If so, in what way?
3. Now that you have had some experience in BPCI, are you considering changing any of the episodes or any of the cost management approaches you are taking?
4. What types of information did you use to decide whether to participate in BPCI, and who to have as partners in the initiative?
5. Whose leadership was critical to these decisions and the success of the approach you have taken?

B. Impact of BPCI Participation on Organization's Finances

1. How do you expect the initiative to affect your organization's finances?
2. How will you measure its impact on your organization's costs? What do you think are important indicators of the initiative on your organization?
3. Did you need to hire new staff? If so, what types of staff and at what cost?
4. Did you need to modify your IT system? If so, how much did it cost?
5. Did you need to establish new contracts with other providers? If so, please describe.

6. Were there other costs associated with the initiative? If so, what types and how much did that cost? How did you cover those costs in the short term?
7. Have you achieved any internal savings from the redesign initiatives? Is it due to greater efficiencies in any areas of operation? If so, which areas? Please describe.
8. What types of unexpected challenges or opportunities have occurred as a result of your organization's participation in BPCI?
9. Have you seen any impact on your non-BPCI revenues? On your Medicaid populations?
10. What would you do differently in designing a bundled payment program to better meet your organization's success? Why?

C. Gainsharing

1. Is your organization involved in any gainsharing arrangements under BPCI? If so:
 - a. With what types of organizations or providers are you intending to share savings?
 - b. What is your experience to date with how this gainsharing has been implemented or the realization of internal costs savings?
 - c. What are your current expectations for the distribution of gainsharing funds?

D. Successes and Challenges

1. How do you define success under the BPCI? And what types of successes have you experienced so far?
2. What types of challenges have you experienced so far?
 - a. Were these challenges expected or unexpected? If expected, what steps (if any, did you take) to prepare for these challenges?
 - b. How have you handled the challenges so far?
3. Given this experience, what types of changes are you considering in the future and why?
4. What do you think would be important lessons from your experiences to share with other BPCI participants?

E. Replicability

1. Do you think your approach is easily replicable? Why or why not?
2. What factors are critical to your success?

VII. Data Management Leadership

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 initiative in this facility and how you think it has affected patient care.

This interview will take 1 hour. The purpose is to learn about the data management and data sharing systems you have put in place for the BPCI initiative. We are interested in learning about your challenges and successes in managing and producing information on these patients across an extended period of time, and outside of the service setting. Thank you in advance for making the time to speak with us. You are welcome to prepare in advance for this discussion.

A. Data Systems

1. What types of data systems did you need to manage your BPCI-related activities?
 - a. Gainsharing or Other Waiver Related Activities
 - i. Quality Monitoring
 - ii. Internal Cost Calculations
 - iii. Feedback or Other Reporting Activities.
 - b. Patient and Patient Care tracking activities
 - c. Other Care Redesign Activities
 - d. BPCI related administrative activities
2. Are you using existing data resources or did you have to set up new systems for this initiative? Please describe.
3. Whose leadership was key to the success of that effort?
4. What types of data are you using from pre-BPCI operations? What types of new data are you producing for the team to manage these cases? Who uses the data?
5. Are you producing different information on your BPCI patients than on your other patients? Please describe.
6. Please provide a copy of the reports you regularly produce.
7. What was involved in setting up this information management approach?

8. Are you able to electronically transfer patient information across providers in your BPCI initiative? Did you establish a “network” or are you using a cloud-based approach?

B. Successes and Challenges

1. What have been your greatest successes thus far and why do you think they occurred?
2. What have been your greatest challenges and how have you solved them? Were these challenges expected or unexpected?
3. Given your experience thus far, what types of changes are you considering in the future and why?
4. What do you think would be important lessons from your experiences to share with other BPCI participants?

C. Replicability

1. Do you think your approach is replicable? What would others need in order to successfully replicate you?
2. What, and who, have been key to your success?

VIII. Physician Leadership

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 at your site and how you think it has affected patient care.

This interview will take 1 hour. We would like your perspective on how your care redesign initiative will impact patient care, how it differs from your prior treatment approaches, and what have been the challenges and successes of this redesign effort. Thank you for making the time to speak with us. You are welcome to prepare in advance for this discussion.

A. BPCI Entry Decisions and Structure

1. Would you please describe the decision making process that lead to your participation in BPCI? What information did you use to decide whether to participate in BPCI, and who to have as partners in the initiative?
2. Whose leadership was critical to these decisions and the success of the approach you have taken?
3. Were you involved in the selection of which models and episode groups your organization chose to enroll in the BPCI program? If so, in what way?
4. Now that you have had some experience in BPCI, are you considering changing any of the episodes or any of the cost management approaches you are taking?
5. Expected effects of participation in BPCI
 - a. What types of effect do you expect BPCI to have on the following operations and why?
 - i. Costs/case
 - ii. Quality of care
 - iii. Operational costs
 - iv. Other areas

B. Care Redesign Approach

1. Please describe the care process changes that are being adopted in response to BPCI. Which of the following interventions did your organization adopt?
 - a. Redesign care pathways
 - b. Enhancements in care delivery
 - c. Patient activation, engagement, and risk management
 - d. Care coordination
 - e. System changes to support care
2. How and why did you select the particular care redesign interventions for your episodes?
3. How is your BPCI care redesign different from your prior service approaches? (new staff, new protocols, additional staff meetings, different case management activities, new relationships with others in the market, other activities)?
4. Who made the decisions to implement these changes?
5. For those interventions that you adopted, please describe the roles of each of the following: your physicians, other clinicians, the patient/family, others?

C. Key Implementation Factors

1. What would you describe as the key factors required for successful implementation of this initiative? (If you are involved in more than one care redesign implementation, please describe each initiative separately.)
 - a. Building an infrastructure to support successful implementation
 - b. Generating and using actionable data across the clinical episode
 - c. Improving the processes of care/care redesign
 - d. Meeting the terms/conditions of this initiative
2. Whose leadership was critical to the success of the approaches you have taken?
3. What new relationships either across system departments, or with others in the community, were needed to implement these changes?
4. What types of challenges did these changes create and how have you handled them? What would you do differently to avoid/minimize these challenges?
5. What would you do differently if you were starting again?

D. Impact of Care Redesign Approach

1. What impact, if any, do you expect the BPCI care redesign to have on the following factors and why?
 - a. Patient outcomes
 - b. Costs/case
 - c. Operations
 - d. Other areas
2. Have you seen evidence of any of these expected effects so far?

E. Gainsharing

1. Please discuss the impact of your gainsharing arrangements under BPCI on physician participation and the success of this initiative.
 - a. With what types of organizations or providers are you intending to share savings?
 - b. What is your experience to date with how this gainsharing has been implemented or the realization of internal costs savings?
 - c. What are your current expectations for the distribution of gainsharing funds?

F. BPCI Success and Challenges

1. What types of implementation or outcomes successes have you had so far? Please describe.
 - a. Were these successes anticipated?
2. What types of challenges have you had so far?
 - a. Were these challenges expected or unexpected? If expected, what steps (if any) did you take to prepare for these challenges?
 - b. How have you handled the challenges so far?
3. Given this experience, what types of changes are you considering in your approach and why?
4. What do you think would be important lessons from your experiences to share with other BPCI participants?
5. Do you think your approach is easily replicable?
6. What factors were critical to your success?

Appendix N: All Models BPCI Markets vs Non-BPCI Markets

Model 2, 3, and 4 BPCI Market vs. Non-BPCI Market Comparison

Table N.1 presents the market characteristics faced by *all* BPCI providers participating in Models 2, 3 and 4 (BPCI Markets) as well as the characteristics of markets in which BPCI providers were absent (Non-BPCI Markets). The market is defined as the Core Based Statistical Area (CBSA). Providers not located within a CBSA were assigned to the largest CBSA within their Hospital Referral Region (HRR). Non-BPCI markets represent all CBSAs that do not have a Model 2 or 4 BPCI participant. Areas of the country that are not in a CBSA are therefore not included in these Non-BPCI markets.

The average market penetration rate for BPCI ACH providers was 17.3%, the highest market penetration rate among all BPCI types of providers when considering all markets (4.3% for SNFs, 1.3% for HHs, and 8.3% for IRFs). With respect to market competition, ACHs faced significantly higher degree of competition in BPCI markets relative to Non-BPCI markets (average Herfindahl index of 0.19 vs 0.67). The same situation occurred for SNFs and HHs (with an average Herfindahl index of 0.04 vs 0.32 and 0.14 vs 0.53, respectively). The only type of provider who faced a lower degree of competition in BPCI markets relative to Non-BPCI markets was the IRF (0.42 vs 0.12). It is important to note that the numbers in this table not only reflect very few BPCI markets (N=12), but very few BPCI participating providers: 9 ACHs providers participating in Model 2; 1 ACH participating in Model 4; and, 6 SNFs, 1 HH, and 1 IRF participating in Model 3. Given the small number of BPCI providers, it is likely that the results of the market analysis will change as more providers join the BPCI program.

As previously shown, BPCI participants were mainly located in densely populated markets relative to providers located in Non-BPCI markets (on average, ~2.6M residents vs 280,000 residents).

BPCI-Markets had a higher median household income relative to Non-BPCI markets (\$51,703 vs \$44,111) and a slightly higher Medicare Advantage Penetration (23.5% vs 18.2%)

The difference between BPCI and non-BPCI markets with respect to the average proportion of older people residing in these markets was of approximately 2% (13% in BPCI markets vs 15% in Non-BPCI markets).

Relative to Non-BPCI markets, BPCI markets had higher average numbers of PCPs (8 vs 6.4) and Specialists (10.8 vs 5.4), PA/NPs (15.4 vs 9.1) per 10,000 residents.

Table N-1: BPCI Markets vs. Non-BPCI Markets, All Models

Market Characteristic - Overall	Oct - Dec 2013							
	BPCI Markets				Non-BPCI Markets			
	N=12; 1.3% of Markets				N=930; 98.7% of Markets			
	Mean	Median	25th	75th	Mean	Median	25th	75th
BPCI Market Penetration - ACH	17.3%	19.0%	0.5%	27.0%	0.0%	0.0%	0.0%	0.0%
Herfindahl Index - ACH	0.19	0.20	0.09	0.28	0.67	0.84	0.37	1.00
BPCI Market Penetration - SNF	4.3%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.0%
Herfindahl Index - SNF	0.04	0.04	0.02	0.05	0.32	0.27	0.13	0.40
BPCI Market Penetration - HH	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Herfindahl Index - HH	0.14	0.11	0.07	0.19	0.53	0.50	0.20	1.00
BPCI Market Penetration - IRF	8.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Medicare Advantage Penetration	23.5%	21.6%	15.8%	29.6%	18.2%	15.4%	8.6%	24.4%
Population	2,644,233	767,409	464,965	2,131,605	280,035	73,608	39,819	167,699
Median Household Income	\$51,703	\$50,772	\$47,695	\$55,931	\$44,111	\$43,052	\$38,478	\$48,472
% Age 65+	13%	12%	11%	15%	15%	15%	13%	17%
PCP Per 10,000	8.0	8.2	6.9	9.0	6.4	6.2	4.8	7.7
Specialist Per 10,000	10.8	10.1	8.6	12.9	5.4	4.4	2.6	6.8
PA/NPs Per 10,000	15.4	16.0	11.8	19.2	9.1	8.1	5.2	11.1
SNF Beds Per 10,000	56.1	51.6	44.2	65.4	70.8	64.7	43.4	90.7