Evaluating opportunity in the CMMI BPCI program: Comparison of PAC utilization to benchmarks

Kate Fitch, RN, MEd
Bruce Pyenson, FSA, MAAA
Michele Berrios
Tyler Engel

BACKGROUND

The successful cost reduction of Medicare's Acute Care Episode (ACE) demonstration program encouraged the Center for Medicare and Medicaid Innovation (CMMI) to launch the Bundled Payment for Care Improvement Initiative (BPCI). More than 150 "Wave 1" awardees went live in the BPCI program on either October 1, 2013, or January 1, 2014. These organizations selected from the 48 family/episode options made up from 179 "anchor" diagnosis-related groups (DRGs)—and many are adding episodes to their initial selections. Many more organizations have recently received the data to let them analyze a "Wave 2" January 1, 2015, start. The opportunity to reduce Medicare claims cost in the BPCI program is typically in the post-acute care (PAC) period. Analyzing the opportunity to reduce Medicare PAC spending requires providers to adopt a payor state of mind—payor tools and approaches will be very helpful. Benchmarking to best practices is one of those tools.

The BPCI formula guarantees a 2% or 3% savings to the Medicare program (depending on the awardees' choices). Shared savings with the BPCI awardee start after that guarantee. Medicare Parts A and B costs for the 179 anchor DRG inpatient admissions make up 21% of Medicare spending, and when the PAC costs in the 90 days after discharge are included, these account for 40% of Medicare spending (see Figure 1). On average, for the 179 DRGs targeted by the BPCI program, 48% of the total bundle claims cost is contributed by the 90-day PAC period, while 52% is contributed by the anchor inpatient stay.

PAC BENCHMARKING OPPORTUNITY ANALYSIS

We developed nationwide average and 10th percentile benchmarks for PAC periods of 1-30, 31-60, and 61-90 days. The benchmarks include the percent of each DRG with use of each service and for all, except home care, the average number of days the service was used:

- Readmissions
- Long-term acute care (LTAC)
- Inpatient rehabilitation facility (IRF)
- Skilled nursing facility (SNF)
- Home care

FIGURE 1: PERCENT CONTRIBUTION TO TOTAL ANNUAL MEDICARE ALLOWED PART A AND B COSTS

	HOSPITAL INPATIENT	1-30 DAY PAC	1-60 DAY PAC	1-90 DAY PAC	TOTAL INPATIENT AND 90-DAY PAC
BPCI 179 DRGs	21%	10%	16%	19%	40%
ALL INPATIENT DRGs	32%	13%	20%	25%	57%

PAC costs do not exclude BPCI "unrelated readmissions." Source: Milliman analysis of the 2012 Medicare 5% Sample data.

We provide examples of PAC benchmarks for two DRGs to highlight the importance to BPCI awardees of benchmarking claims data experience in order to:

- Select episodes (DRG families)
- Set targets for utilization reduction of relevant PAC services
- Establish programs to more efficiently manage the utilization of key PAC services
- Monitor performance toward targets

Figures 2 and 3 show illustrative hospital experience as well as nationwide average and 10th percentile benchmarks for DRG 191, "chronic obstructive pulmonary disease with CC (COPD)," and for DRG 247, "percutaneous cardiovascular procedure with drug-eluting stent without MCC."

Comparison of hospital experience to benchmarks for DRG 191 indicates significant opportunity to reduce readmissions, SNF stays, and SNF length of stay. For this illustrative awardee, if utilization of PAC services moved 50% of the way toward 10th percentile benchmarks, an 8% reduction in overall bundle cost could be achieved.

For DRG 247, the PAC cost makes up a smaller portion of total bundled cost than for DRG 191 so a larger reduction in PAC costs is required to achieve the same overall reduction in bundle cost. Readmissions, LTAC, and SNF utilization indicate opportunity for reduction compared to benchmark. If utilization of PAC services moved 50% of the way toward 10th percentile benchmarks, the awardee could achieve a 6% reduction in overall bundle cost.

METHODOLOGY

We developed PAC utilization benchmarks by DRG for the 179 BPCI DRGs using the 2012 Medicare 100% data. The Medicare 100% data contains all Medicare paid claims (excluding professional claims) generated for all Medicare beneficiaries in the United States. Information includes diagnosis codes, procedure codes, and DRG codes, along with site of service information including provider IDs. The data also provides monthly eligibility for each beneficiary including demographics, eligibility status, and an indicator for HMO enrollment.

The benchmarks in Figures 2 and 3 reflect fee-for-service (FFS) nationwide average utilization and 10th percentile utilization of readmissions (readmission utilization rates reflect removal of BPCI's excluded readmissions), LTAC, IRF, SNF, and home care in the 30-day PAC period by DRG. The benchmarks reflect experience for FFS Medicare beneficiaries (including dual-eligible). Nationwide average benchmarks reflect average utilization of PAC services across all cases for each DRG. The 10th percentile benchmarks reflect the 10th percentile best performing hospital's experience by DRG for PAC services. The 10th percentile benchmarks reflect FFS experience—lower utilization targets should be considered as Medicare Advantage populations have been observed to achieve even lower PAC utilization.

FIGURE 2: 191 - CHRONIC OBSTRUCTIVE PULMONARY DISEASE WITH CC
CCMI EPISODE: COPD, BRONCHITIS/ASTHMA

ANCHOR ADMISSION AND 30-DAY POST-ACUTE CARE HOSPITAL EXPERIENCE AND BENCHMARKS

	ILLUSTRATIVE HOSPITAL EXPERIENCE					NATIONWIDE AVERAGE		10TH PERCENTILE	
COST CATEGORIES	AVERAGE COST CONTRIBUTION PER EPISODE (1) (2)	COST AS A % OF TOTAL EPISODE COST	AVERAGE COST OF SERVICE	% OF ANCHOR DRG ADMITS WITH SOME UTILIZATION IN CATEGORY	AVERAGE DAYS PER SERVICE FOR THOSE WITH A CLAIM FOR SERVICE	% OF ANCHOR DRG ADMITS WITH SOME UTILIZATION IN CATEGORY	AVERAGE DAYS PER SERVICE FOR THOSE WITH A CLAIM FOR SERVICE	% OF ANCHOR DRG ADMITS WITH SOME UTILIZATION IN CATEGORY	AVERAGE DAYS PER SERVICE FOR THOSE WITH A CLAIM FOR SERVICE
ANCHOR INPATIENT ADMISSION	$4,791	38%							
POST-ACUTE CARE (PAC)									
INPATIENT READMISSIONS	$4,026	32%	$11,596	34.7%	9.1	22.4%	6.8	18.4%	6.4
LONG TERM ACUTE CARE (LTAC)	$0	0%	$0	0.0%	-	1.1%	21.2	0.7%	20.0
INPATIENT REHAB FACILITY (IRF)	$232	2%	$16,723	1.4%	5.0	1.3%	11.7	0.9%	11.2
SKILLED NURSING FACILITY (SNF)	$2,666	21%	$11,997	22.2%	25.2	17.1%	28.2	9.4%	22.4
HOME CARE	$431	3%	$1,942	22.2%	N/A	23.7%	N/A	20.1%	N/A
OTHER PART B (3)	$446	4%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL 30-DAY PAC - PART A AND B	**$7,802**	**62%**							

30-DAY POST-ACUTE CARE SAVINGS PROJECTIONS (4)

	PROJECTED % REDUCTIONS			SAVINGS PER EPISODE		
	% REDUCTION IN EPISODE COST IF PAC UTILIZATION IS MOVED 50% TOWARD 10TH PERCENTILE	% REDUCTION IN EPISODE COST IF PAC UTILIZATION IS REDUCED 10%	% REDUCTION IN EPISODE COST IF PAC UTILIZATION IS REDUCED 25%	$ REDUCTION IN EPISODE COST IF PAC UTILIZATION IS MOVED 50% TOWARD 10TH PERCENTILE	$ REDUCTION IN EPISODE COST IF PAC UTILIZATION IS REDUCED 10%	$ REDUCTION IN EPISODE COST IF PAC UTILIZATION IS REDUCED 25%
TOTAL 30-DAY PAC - PART A AND B	**8%**	**3%**	**8%**	**$1,842**	**$736**	**$1,839**

Kate Fitch, Bruce Pyenson, Michele Berrios, Tyler Engel

FIGURE 3: 247 - PERCUTANEOUS CARDIOVASCULAR PROCEDURE WITH DRUG-ELUTING STENT WITHOUT MCC
CMMI EPISODE: PERCUTANEOUS CORONARY INTERVENTION

ANCHOR ADMISSION AND 30-DAY POST-ACUTE CARE HOSPITAL EXPERIENCE AND BENCHMARKS

	ILLUSTRATIVE HOSPITAL EXPERIENCE					NATIONWIDE AVERAGE		10TH PERCENTILE	
COST CATEGORIES	AVERAGE COST CONTRIBUTION PER EPISODE (1) (2)	COST AS A % OF TOTAL EPISODE COST	AVERAGE COST OF SERVICE	% OF ANCHOR DRG ADMITS WITH SOME UTILIZATION IN CATEGORY	AVERAGE DAYS PER SERVICE FOR THOSE WITH A CLAIM FOR SERVICE	% OF ANCHOR DRG ADMITS WITH SOME UTILIZATION IN CATEGORY	AVERAGE DAYS PER SERVICE FOR THOSE WITH A CLAIM FOR SERVICE	% OF ANCHOR DRG ADMITS WITH SOME UTILIZATION IN CATEGORY	AVERAGE DAYS PER SERVICE FOR THOSE WITH A CLAIM FOR SERVICE
ANCHOR INPATIENT ADMISSION	$10,464	67%							
POST-ACUTE CARE (PAC)									
INPATIENT READMISSIONS	$2,972	19%	$20,804	14.3%	4.0	11.0%	4.3	8.6%	4.2
LONG TERM ACUTE CARE (LTAC)	$869	6%	$24,322	3.6%	16.0	0.1%	26.9	0.0%	46.5
INPATIENT REHAB FACILITY (IRF)	$0	0%	$0	0.0%	-	0.5%	11.8	0.3%	12.5
SKILLED NURSING FACILITY (SNF)	$741	5%	$10,370	7.1%	19.0	3.1%	27.2	1.7%	22.4
HOME CARE	$126	1%	$3,514	3.6%	N/A	8.0%	N/A	5.9%	N/A
OTHER PART B (3)	$438	3%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TOTAL 30-DAY PAC - PART A AND B	**$5,145**	**33%**							

30-DAY POST-ACUTE CARE SAVINGS PROJECTIONS (4)

	PROJECTED % REDUCTIONS			SAVINGS PER EPISODE		
	% REDUCTION IN EPISODE COST IF PAC UTILIZATION IS MOVED 50% TOWARD 10TH PERCENTILE	% REDUCTION IN EPISODE COST IF PAC UTILIZATION IS REDUCED 10%	% REDUCTION IN EPISODE COST IF PAC UTILIZATION IS REDUCED 25%	$ REDUCTION IN EPISODE COST IF PAC UTILIZATION IS MOVED 50% TOWARD 10TH PERCENTILE	$ REDUCTION IN EPISODE COST IF PAC UTILIZATION IS REDUCED 10%	$ REDUCTION IN EPISODE COST IF PAC UTILIZATION IS REDUCED 25%
TOTAL 30-DAY PAC - PART A AND B	**6%**	**2%**	**6%**	**$1,295**	**471**	**$1,177**

1. Disproportionate share hospital (DSH) and indirect medical education (IME) payments have been excluded from all inpatient costs.
2. "Average Cost Contribution per Episode" reflects some patients not receiving some services; total costs are averaged across all patients having an anchor admission.
3. Other Part B costs include outpatient rehab, Part B drugs, outpatient facility, outpatient professional, and durable medical equipment (DME).
4. Savings projections reflect Part A and B savings associated with reducing readmissions, LTAC, IRF, SNF, and home care.

The following steps were taken to develop the 10th percentile benchmarks:

- An index was created for each hospital and DRG that reflected utilization of readmissions, IRF, and SNF days in the 30-day PAC period
- A probability distribution of hospital indexes was created for each DRG family using statistical methods
- Based on the distribution of indexes for each DRG family, we identified the hospitals performing in the top 10th percentile
- The experience of the hospitals in the 10th percentile of each DRG family was designated as 10th percentile and their bundle episodes were used to calculate the 10th percentile utilization of PAC services for each DRG

Our 10th percentile benchmarks assume the national proportion (15%) of dual-eligibles and that proportion may vary for individual hospitals.

Kate Fitch, Bruce Pyenson, Michele Berrios, Tyler Engel

CONCLUSION

Considerations when selecting BPCI families/episodes include volume of cases (to reduce statistical variation), expertise and resources to more efficiently manage episode claim costs, opportunities for gain sharing associated with hospital expense reductions (e.g., implant costs), ability to impact hospital value-based purchasing (HVBP) program incentives, readmission penalties, etc. The opportunity to reduce PAC utilization is one of the most important considerations. Assessing this opportunity requires comparison of historical PAC experience by DRG with benchmarks. Benchmarking provides an organization with the ability to set targets for PAC utilization reduction, project feasible claim cost reduction, and efficiently focus bundled payment resources and initiatives.

Kate Fitch, RN, MEd, is a principal and healthcare consultant with the New York office of Milliman. Contact her at kate.fitch@milliman.com.

Bruce Pyenson, FSA, MAAA, is a principal and consulting actuary with the New York office of Milliman. Contact him at bruce.pyenson@milliman.com.

Michele Berrios is a healthcare management consultant with the New York office of Milliman. Contact her at michele.berrios@milliman.com.

Tyler Engel is an actuarial analyst with the New York office of Milliman. Contact him at tyler.engel@milliman.com.

FOR MORE ON MILLIMAN'S HEALTHCARE REFORM PERSPECTIVE

Visit our reform library at www.milliman.com/hcr
Visit our blog at www.healthcaretownhall.com
Or follow us on Twitter at www.twitter.com/millimanhealth