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Bundled Payments for Care Improvement in the Private Sector: A Win for Everyone

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ABSTRACT

Background: To help slow the rising costs associated with total joint arthroplasty (TJA), the Centers for Medicare and Medicaid Services introduced the Bundled Payments for Care Improvement (BPCI) initiative. The purpose of this study is to report our 1-year experience with BPCI in our 2 arthroplasty surgeon private practice.

Methods: In this series, a historical baseline group is compared with our first year under BPCI. We reviewed the cohorts with respect to hospital length of stay (LOS), readmission rates, discharge disposition, postacute care LOS, and overall savings on a per episode basis.

Results: The baseline group included 582 episodes from July 2009 to June 2012. The BPCI study group included 332 episodes from July 2015 to September 2016. We witnessed a substantial learning curve over the course of our involvement in the initiative. The total reduction in cost per episode for TJA was 20.0% ($P = .10$). Hospital LOS decreased from 4.9 to 3.5 days ($P = .02$). All-cause 90-day readmission rates decreased from 14.5% to 8.2% ($P = .0078$). Overall, discharges to home increased from 11.6% to 49.8% ($P = .005$).

Conclusion: Our small, private, 2 arthroplasty surgeon orthopedic practice has shown improvement in postoperative management for TJA patients in 1 year under the BPCI initiative, with increased discharges to home, decreased skilled nursing admissions, days in skilled nursing, and overall readmissions. Because BPCI includes fracture care arthroplasty, the model could be made more equitable if these patients were reimbursed a rate commensurate with their increased costs and risks.

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The US health care system accounts for 17% of gross domestic product, with estimates from the National Healthcare Expenditure Projections that this percentage will grow to nearly 20% by 2020 [1]. To help slow government spending, in 2013, the Centers for Medicare and Medicaid Services (CMS) authorized the Bundled Payments for Care Improvement (BPCI) initiative to test innovative payment and service delivery models [2]. These new models have the potential to reduce Medicare and Medicaid expenditures and encourage maximization of quality and value of health care in the United States, while improving the quality of care to its beneficiaries [2–4]. Total joint arthroplasty (TJA) has been a prime target of the BPCI program, as TJA comprises a large share of CMS expenditures and is expected to increase greatly in incidence over the next decade [3,5–8].

Studies report that >80% of the cost of TJA is the result of the index case (anchor stay) plus associated postacute care (PAC) services [9]. PAC services include services such as subacute nursing facilities (SNFs), home health care agencies, inpatient rehabilitation facilities (IRFs), and long-term acute care hospitals. Reducing index procedure length of stay (LOS) and discharging more patients to home rather than PAC facilities has shown a significant reduction in cost as well as a reduction in readmission rates, surgical site infection rates, and reoperation rates [2,10–18]. Some health care systems have been involved in the BPCI initiative before the nationwide rollout and have shown successful implementation and

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application, thanks to the ability to modify risk factors before elective total hip arthroplasty and total knee arthroplasty (TKA) [6,19,20].

The purpose of this study is to report the 1-year experience with participation in the BPCI program in our private practice. We sought to compare our hospital LOS, readmission rates, PAC utilization, and PAC LOS for our historical cohort as compared with the first year under the bundled payment program. In addition, we wanted to quantify the cost savings for CMS under the program on a per episode basis.

Materials and Methods

Institutional review board's approval was not required as all patient data were deidentified. All Medicare patients with billing codes DRG 469 and 470 were included in this study. Patients treated with total hip arthroplasty for femoral neck fractures, TKA for post-traumatic arthritis, and distal femoral arthroplasty for distal femur fractures were also included in this study under the aforementioned DRGs [21]. Although total ankle arthroplasty is included under DRG 469/470, no total ankle replacements were included in our study. Numerical data were compared using Student *t* test, whereas categorical data were compared using chi-squared or Fisher exact test. A *P* value of .05 was considered significant.

Since July 2015, our practice, a private, multisubspecialty group comprised 15 orthopedic surgeons, has participated in the BPCI initiative for major joint replacement of the lower extremity. Surgeries were performed at 1 of 3 tertiary care university hospitals with teaching affiliation with an orthopedic surgery residency program. We chose to participate in the model 2 program, a retrospective bundle payment where real claims are reconciled against a predetermined target price per episode of care. The target price was calculated according to the historical cohort, a 3-year performance period of our practice from 2009-2012. Two fellowship-trained joint replacement surgeons performed all elective arthroplasty cases for the bundle. Any particular physician in our practice initiates the episode of care as it generates billing for the DRG 469 or 470 for fracture admissions. Episode expenses include all part A and part B expenses during the hospital stay, PAC, as well as readmissions for 90 days postoperatively. We chose to participate in BPCI with a third-party convener (Remedy Partners, Darien, CT). The role of this convener was to serve as a mediator between our practice and CMS. They assisted in educating hospital and PAC facilities with discharge planning and protocols, and maintained their own database of patients in the bundles that tracked PAC usage. When needed, they also helped mitigate cases of disputes, incorrect DRG coding, and/or inappropriate bundling of patients between our practice and CMS. The convener also compiled the historical cohort data of our practice and provided it to CMS. After the CMS 2% discount, all subsequent funds thereafter were distributed to our practice and the third-party convener in a predetermined ratio (75% of the net reconciliation to the practice and 25% to the third-party convener).

In this series, the BPCI initiative included 582 episodes from July 2009 to June 2012, defined as the baseline group, and 332 episodes from July 2015 to September 2016 (2015Q3 − 2016Q3), defined as the BPCI initiative group. All patients undergoing elective hip and knee arthroplasties, regardless of participation in BPCI, were treated with the same clinical protocol (CP) under the guidance of a total joint coordinator [22,23]. The total joint coordinator is a paid employee of the practice and assists in management of TJA patients as well as patients undergoing surgeries with other physicians. The CP was coordinated in conjunction with a quality measures/performance improvement team (Remedy Partners). The CP included a preoperative optimization protocol, with hard stops including body mass index >40 kg/m^2, uncontrolled diabetes (fasting glucose >200 or HbA1c > 8), and anemia (hemoglobin <11 in females and <12 in males). The joint coordinator is in charge of recording the Risk Assessment and Prediction Tool preoperatively to predict post-hospital discharge disposition [24,25]. Home discharge was encouraged whenever possible. Based on our historical cohort, we identified 56 SNFs where our patients were discharged. We evaluated utilization, readmission, and cost data of all SNFs provided to us by the third-party convener. These data were compared with the CMS Nursing Home Compare 5 Star Rating quality data and we selected those with the lowest LOS, readmission rates, and highest qualitative evaluation scores to create a preferred list of 19 geographically distributed SNFs for our patients. We then met with the director of nursing, director of physical therapy, and discharge planner of these facilities to communicate postoperative protocols and discharge expectation. No financial arrangement existed between our practice and the PAC facilities or the hospitals. All patients had a nonbilled preoperative consultation with one of our physical therapists to review home safety and expectations for postoperative recovery and home exercise education. An methicillin-sensitive *Staphylococcus aureus*/methicillin-resistant *Staphylococcus aureus* nasal screening and decolonization protocol was implemented for all patients.

The joint coordinator organized the entire process for managing our arthroplasty patients in the BPCI program, from preoperative to postoperative at all 3 hospitals. Preoperatively, the total joint coordinator was responsible for patient and family education on expectations for inpatient hospital stay and PAC, coordinating referrals to preferred home care agencies and creating and communicating the posthospital discharge plan of care. During the postoperative period, the joint coordinator kept a database of patients in the bundle and followed their PAC, managed discharge protocols with the hospital's case manager and social worker, and called patients at home and communicated with our preferred SNFs to gauge patient progress. The joint coordinator regularly met with SNF staff to ensure that our expeditious protocols were being followed.

Claims data were provided by CMS on a monthly basis, with reconciliations occurring quarterly. CMS reconciliation began 9 months after the quarter's end. The CMS reconciliation process completes all denials and appeals approximately 15 months after the last quarter of episodes.

Results

The baseline group was calculated from 582 episodes that occurred from July 2009 to June 2012. The BPCI study group included 332 episodes from July 2015 to September 2016. The total BPCI savings per episode during the study, as defined by reduction in total cost for CMS per episode, represented a 20.0% reduction in overall costs, from $34,299 to $27,453, saving CMS an average of $6846 per episode ($P = .10$; Table 1). Because of a large standard deviation in BPCI episode costs (±$19,735), this only trended toward statistical significance.

The average hospital LOS demonstrated decreased from 4.9 to 3.49 ± 2.71 days ($P = .02$; Table 1). All-cause readmissions within 90 days of surgery also decreased from 14.5% to 8.2% ($P = .0078$). Discharge disposition drastically improved under BPCI. Before BPCI, only 11.6% of patients were discharged home, which improved to 49.8% after the initiative ($P = .005$). Discharges to SNF and IRF reduced from 78.5% to 48.3% ($P = .001$) and 9.6% to 1.8% ($P = .015$), respectively. Overall, SNF days used per episode also decreased from 23 to 15.8 days ($P = .02$), with only 13.3 days used on average in the last quarter.

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