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# Standardizing Care and Improving Quality under a Bundled Payment Initiative for Total Joint Arthroplasty

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ABSTRACT

Increasing demands for episodic bundled payments in total hip and knee arthroplasty are motivating providers to wring out inefficiencies and coordinate services. This study describes a care pathway and gainshare arrangement as the mechanism by which improvements in efficiency were realized under a bundled payment pilot. Analysis of cut-to-close time, LOS, discharge destination, implant cost, and total allowed claims between pre-pilot and pilot cohorts showed an 18% reduction in average LOS (70.8 to 58.2 hours) and a shift from home health and skilled nursing facility discharge to home self-care (54.1% to 63.7%). No significant differences were observed for cut-to-close time and implant cost. Improvements resulted in a 6% reduction in the average total allowed claims per case.


Estimates place the prevalence of osteoarthritis, the disease causing total hip and knee arthroplasty, at 18.2% by 2020 [1]. Demand for total joint arthroplasty (TJA) is expected to grow exponentially in the next 10 years. One estimate places the total number of hip and knee arthroplasties at over 4 million by 2030, an increase of 174%. TJA has been identified as a procedure with extreme variation in pre-operative, intra-operative, and post-operative care and in fact, hip and knee arthroplasties are among the procedures with the most varied payments [2]. This variation in efficiency and quality uncovers fragmented care; the consequence of the current and unsustainable fee-for-service payment model.

Efficiency and quality care are increasingly important as payment reform programs gain traction under the Patient Protection and Affordable Care Act. Many unique care models have been introduced as solutions, such as Geisinger Health System's ProvenCare [3], PROMETHEUS [4], and Medicare's Acute Care Episode (ACE) [5], and the Dartmouth Hitchcock Institutes GreenCare [6]. In 2011, CMS introduced the Bundled Payments for Care Improvement (BCPI) Initiative. While numerous entities on the delivery system side have signed on to the BCPI initiative, some have chosen to pilot their own payment reform program in lieu of, or in advance of, signing on with the BCPI initiative.

In the emerging payment reform programs, the delivery system will shoulder a larger burden of financial risk and both hospitals and physicians will face increased accountability with payment now tied to clinical outcomes. One of the most attractive payment reform programs is episodic bundled payments. In this model, a payer reimburses a contracted price for an aggregation of services within a defined episode of care [5,7,8]. Under this payment, doctors, hospitals, and other providers share this single payment. This challenges the delivery system to wring out inefficiency and pushes providers toward standardization of care pathways intended to eliminate unnecessary or duplicative services and improve quality [9].

There is some evidence that bundled payments can lead to improved care coordination and reduce the cost of unnecessary or duplicative services [2]. However there is a notable absence in the literature on the context specific examination of a standardized care pathway in concert with a bundled payment program and related gainshare model and its effect on efficiency and quality in primary elective TJA [8].

This site specific examination focuses on a standardized care pathway as the mechanism by which gains in efficiency and quality were realized. This standardized care pathway emerged under an episodic bundled payment pilot and was incentivized with a physician gainsharing program. This paper describes the development of this pilot project and provides some preliminary results indicating favorable outcomes in terms of length of inpatient stay, discharge disposition, total allowed claims, OR time, implant cost, readmission rate, Surgical

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Care Improvement Project (SCIP) compliance, in hospital mortality, Western Ontario and McMaster Universities Osteoarthritis index (WOMAC) scores, and the revenue generated from a physician/hospital gainsharing arrangement.

## Materials and Methods

Coordination of services necessary for the implementation of a bundled payment and care pathway occurred as a result of a process that connected providers across the care continuum (Fig. 1) and between hospital administration, clinical providers, and payer(s). Twelve work sessions were held throughout the 2011 development period. These meetings were led by an external facilitator with the focus being physician-led proposals and agreements in all pieces of the bundled payment, care pathway, and gainshare model.

### *The Bundled Payment*

The bundled payment pilot for elective primary TJA and was implemented at two high volume hospitals (2400 TJA procedures per year). The bundled payment covers an episode of care beginning 30 days preoperatively and ends 90 days postdischarge and guarantees a fixed price to payers for all contracted services within this time frame.

Payment arrangements included a set price negotiated between the hospital and the payer(s). Cases that came in under this price and met the quality targets result in revenue surplus that would become allotted to a hospital/physician gainsharing pool. For the hospital, a gainshare serves not only as an incentive, but as surplus revenue to cover additional financial risk the hospital assumes for cases that come in over the contracted price. Physicians are eligible to gainshare when cases meet target goals. The targets of the gainshare were determined by the payer(s), hospitals, and physicians with quality thresholds for LOS, implant cost, discharge disposition and SCIP measures, claims savings, cut to close times, patient satisfaction, patient class attendance, and physician meeting attendance.

The intended target population for the bundled payment is patients receiving primary elective TJA with an assigned DRG 469 or 470, and covered by a contracted payer and physician. Patients receiving bilateral or revision surgeries are not included. The bundled payment was the driving force for collaboration in developing a standardized care pathway.

### *The Standardized Care Pathway*

At the inception of the project, analysts looked at direct costs in the 2010 baseline data and uncovered significant variation. Further discussions with providers uncovered further variation in clinician practice and patient engagement activities across the entire episode of care. Standardization of the care pathway was reached by physician-led discussion to reduce direct costs by changing practice in the use of specific supplies, labs, Rx/IV, PT/OT/ST, and implants (Table 1). Additionally, physicians agreed to standardize practices across the entire episode of care from pre-operative planning through patient discharge.

Opportunities for direct cost reduction were initiated at physician led meetings, and decisions were made to standardize practice or allow for variation (Table 2).

Physicians and affiliated care teams discussed variation in practices across the episode of care from pre-operative planning through to patient discharge. A care pathway was standardized that brought together both best-practices for quality care and patient engagement (Table 3).

Adherence to this care pathway was achieved by the implementation of a physician–hospital gainsharing arrangement.

### *The Gainshare Model*

Every month, the total claims paid are compared against the contracted bundled price. If there are savings then a savings pool is created. At the top tiers, the savings pool becomes available if specific group measures are met. The expectation is that these group measures motivate physicians to look at each others practices and see if there is room for improvement. At this group level, there are two quality targets that must be met in order for the savings pool to remain intact at this early stage (1) 95% of cases must have passed SCIP measures and (2) 26% or less were discharged to a skilled nursing facility (SNF). If the savings pool remains intact, the population is now broken down to a case by case evaluation. At this point in the gainshare model, physicians are now individually accountable for meeting quality gates in order to earn a payout. Each case must meet the following 4 gates in order to remain in the savings pool: (1) Passed SCIP (2) No mortality (3) Patient filled out a WOMAC and (4) No related readmission. If all 4 gates are met, the case remains in the savings pool and the physician can earn from this pool. Physicians can earn from the pool of eligible cases according to the following allocations: 40% earned if case met LOS target, 20% earned if case meets cut-to-close time target, 10% 15%

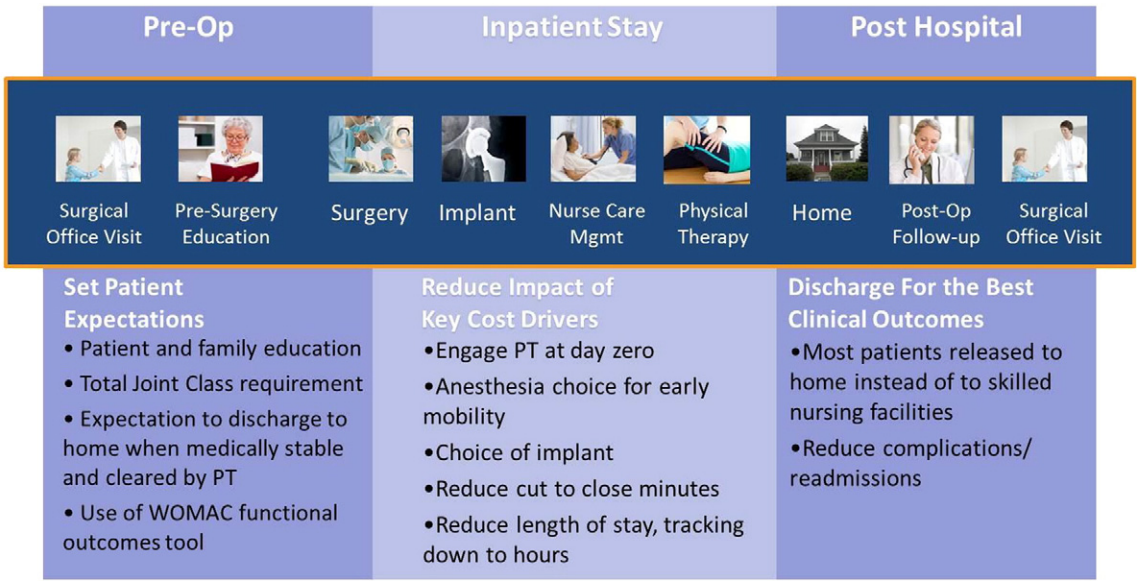


**Fig. 1.** Defined episode of care.