The Journal of Arthroplasty 31 (2016) S54–S58

Contents lists available at ScienceDirect

The Journal of Arthroplasty

journal homepage: www.arthroplastyjournal.org

Health Policy and Economics

Physicians With Defined Clear Care Pathways Have Better Discharge Disposition and Lower Cost

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ARTICLE INFO

Article history:
Received 8 December 2015
Received in revised form
21 April 2016
Accepted 3 May 2016
Available online 11 May 2016

Keywords:
care pathway
total joint arthroplasty
bundled payment
discharge disposition
primary hip arthroplasty
primary knee arthroplasty

ABSTRACT

Background: There is a pronounced need for a sustainable care model for total joint arthroplasty in the United States. Total hip and knee arthroplasty is expected to increase 673% by 2030, and Medicare is the payor for a majority of these episodes. Our objective was to compare orthopedic cohort groups with and without defined postacute care pathways and the effects of the care pathways on service utilization and cost for Medicare patients in the Bundled Payments for Care Improvement program.

Methods: Claims data for elective hip and knee arthroplasty episodes from a national bundled payments for care improvement database were the source of our study data. Independent reviewers were used to determine which groups had defined clinical pathways. The 2 cohort groups were then compared between those with defined clinical pathways and those without. Outcomes measures included postacute care costs, utilization rates (both frequency and length of time) for inpatient rehabilitation facilities, skilled nursing facilities, home health, and readmissions.

Results: Orthopedic physicians with defined postacute care pathways showed consistent decreases in cost and utilization as compared to physicians without defined postacute care pathways. Elective hip arthroplasty per episode cost differential was $3189 per episode between physicians with care pathways ($19,005) and those without ($22,195; $P < .001$). Elective knee arthroplasty per episode cost difference was $2466 per episode between physicians with care pathways ($18,866) and those without ($21,332; $P < .001$). Incident rates of utilization for postacute care services displayed significant differences between physicians with and without postacute care pathways. Physicians with defined postacute pathways demonstrated utilization reductions ranging from 7% to 79% with incident rate reductions ranging from 44% to 79%.

Conclusion: The results suggest that orthopedic physicians with defined postacute care pathways affect discharge disposition. The findings show significant cost and utilization reductions for physicians with defined postacute care pathways.

There is a pronounced need for a sustainable care model for total joint arthroplasty (TJA) in the United States. Total hip and knee arthroplasty are continuously on the rise in the United States with growth up to 673% expected by 2030 for total knee arthroplasty and 174% for total hip arthroplasty [1]. Medicare is the majority payer for primary hip and knee arthroplasty. Diagnosis Related Group (DRG) 470, the main DRG for total hip and knee arthroplasty, was the highest volume Medicare DRG in 2011 [2].

The Bundled Payments for Care Improvement (BPCI) initiative was put forth by Medicare in 2011 to improve the quality of care while decreasing costs. Four models of care were established and differ in their definition of an episode of care ranging from just the inpatient stay (model 1) to the inpatient stay plus all postacute care services up to 90 days after discharge (models 2, 3, and 4) [3].

One or more of the authors of this paper have disclosed potential or pertinent conflicts of interest, which may include receipt of payment, either direct or indirect, institutional support, or association with an entity in the biomedical field which may be perceived to have potential conflict of interest with this work. For full disclosure statements refer to http://dx.doi.org/10.1016/j.arth.2016.05.001.

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http://dx.doi.org/10.1016/j.arth.2016.05.001
0883-5403/

Protocol Group 1 – The care pathways developed and implemented by this Group are based on integrating a nurse as the Total Joint program coordinator. The nurse utilizes pre-operative assessments and patient optimization to prepare patients for joint replacement surgery and support successful outcomes. The nurse coordinates care with acute and post-acute providers and directly interacts with each provider. The physicians using these protocols have standardized their pre-operative protocols and have established a Total Joint Program which integrates pre-op, acute and post-acute providers through coordinated communication.

Protocol Group 2 – The care pathways developed and implemented by this Group are based on a standardized pathway interspersed throughout the entire clinical staff within the physician practice. Every member of the staff comprehends, supports and communicates the care pathways which strongly emphasize a post-acute protocol which rapidly transitions a patient to their normal life style setting. The Group encourages an expeditious transition because of the reduced risk of infections, complications, slower recovery and the belief that returning to normal daily activities best supports recovery.

Protocol Group 3 - The care pathways developed and implemented by this Group are based on a standardized pathway which incorporates physical therapists in prehabilitation and integrates a physician-led care team comprised of the orthopedic surgeon, physician assistant, physical therapist, patient and family member. The interdisciplinary care team works with the patient to develop comprehensive care plan which addresses individual patient needs. Frequently the patient needs for additional post-acute care needs such as skilled nursing or home health are primarily driven by social needs and not medical or therapy.

Protocol Group 4 - The care pathways developed and implemented by this Group are based on utilizing a preferred post-acute provider network with skilled nursing facility and home health agencies. The Group developed standardized care pathways with a select group of SNF and HHA. When patients are discharged from the hospital to any of the preferred PAC providers the PAC providers utilize a standardized intake assessment and planning pathway. Another important factor is the Group does not uses duplicative services, so patients are discharged to either SNF or HHA and very rarely will a patient receive services for both providers.

Fig. 1. Clinical pathway groups.

Several hospital systems have reported successful implemented of this initiative [4,5].

To sustain the future of TJA, it is critical to develop clinical pathways that will help meet the increasing demand of TJA patients [6-8]. Multiple centers have described operating room efficiency and rapid total joint rehabilitation pathways as means to improve patient care and decrease costs [9-26]. These pathways have also been critical in cost savings of programs managing a BPCI initiative [5].

The purpose of this study was to evaluate 2 cohort groups, one with a defined clinical pathway and the other without, to determine if there was a difference in discharge disposition or cost. We hypothesized that the cohort with a defined clinical pathway would be superior in both improving discharge disposition (home vs rehab facility) and in decreasing cost.

Materials and Methods

Our objective was to compare orthopedic cohort groups with and without defined postacute care pathways and the effect on service utilization and cost for Medicare patients in the BPCI initiative. This was a cross-sectional study of subjects from Medicare model 2 Bundled Payment for Care Improvement episode claims data. Participants in this study included 77,008 DRG 469 and 470 Medicare fee-for-service patients from 68 independent orthopedic groups across the United States. In this research project, we partnered with Signature Medical Group, who serves as the awardee convener and owners of these data. Awardee conveners can be parent companies, health systems, and other organizations who wish to take the risk of all of their own bundled payment patients and all bundled payment patients of episode initiating bundled payment participating organizations.

The purpose of this study was to review elective hip and knee arthroplasty episodes in a national BPCI initiative. Independent reviewers were used to determine which groups had defined clinical pathways (Fig. 1). The 2 cohort groups were then compared between those with defined clinical pathways and those without. Outcomes measures include postacute care costs, incident rates (frequency), and utilization rates (length of time) for inpatient rehabilitation facilities, skilled nursing facilities, home health, and readmissions.

One example of a standardized protocol used by one of the large groups is described to represent a typical standardized pathway used by the groups with a standardized pathway [26]. A standardized evidence-based perioperative protocol using established American Academy of Orthopaedic Surgeons clinical practice guidelines was used for all patients that addressed preoperative, intraoperative, and postoperative care [27-33]. Preoperatively, at the physician's clinic, patients receive extensive counseling at the time of surgical scheduling. Expectations about discharge, avoiding nosocomial infection, and avoiding blood clots are communicated to the patients [34]. Rapid mobilization and early discharge are emphasized preoperatively in the office setting and at a hospital-based total joint class. All patients