

Can we do it better? Impact of an Enhanced Recovery Pathway for an Existing Successful Total Joint Program within Community Hospital.

Joshua Campbell, MD, Desirée Chappell, MSNA, CRNA, Patrick Shanahan, MD, MBA.
Norton Audubon Hospital, Louisville, KY

Background: Enhanced Recovery After Surgery (ERAS) is a well-established platform for improving patient care across Europe and the United States. Originally, ERAS was focused primarily within specialties where the highest yield in reduction of hospital days could be achieved, primarily general surgery and urology. More recently clinicians have been expanding ERAS to other surgical specialties including orthopedics. As a specialty, orthopedics has a growing number of patients receiving elective primary total knee arthroplasty and total hip arthroplasty. These elective orthopedic cases account for a rising portion of US hospital expenditure and total cases as well as represent a continued aging patient population.^{1,2} As a private practice group, Anesthesiology Consultant Enterprises has taken an active role in implementation of ERAS protocols for multiple different surgical specialties and saw a need to further expand our ERAS approach to elective primary total knee arthroplasty and total hip arthroplasty.

Methods: Our approach to ERAS for elective total joints centered on continued pre-operative optimization (nutrition, carbohydrate loading, and education), intraoperative redesign based on proven interventions (multi-modal pain management and total IV anesthesia), and post-operative optimization (early mobilization, nutrition, and opioid reduction). In March 2017, we implemented our orthopedic ERAS program and collected data on all elective primary knee and hip arthroplasties. The cost implementation data was compared to the baseline data of 2015 for the same orthopedic surgeons. Composite data for knee and hip arthroplasties were kept separate for comparison.

Results: After implementation of the orthopedic ERAS program, a reduction of length of stay (LOS) (pre-ERAS 3.52 days versus post-ERAS 2.99 days) and cost (pre-ERAS 12,987 versus 12,698) of both elective hips and knees arthroplasties was noted for each of the participating surgeons (figure 1).

Conclusion: We can do it better. Despite our preexisting successful joint program, implementation of an ERAS pathway yielded a total reduction of LOS and variable direct costs of all joints. On first glance, expending the resources for an ERAS total joint program with a minimal LOS may seem futile. However, examining the separate data for hips versus knees and surgeon A versus surgeon B, post-ERAS outcomes were greatly reduced compared to pre-ERAS. Although not collected within this study but observed anecdotally, additional benefits of ERAS for joints included reduced complications, improved nutritional status and patient satisfaction. These factors in addition to the marginal yet significant cost savings highlights the added value of ERAS for orthopedic, elective total joints.

Physician	2015 Baseline (n)	2016	2017 ERAS	2015 Baseline (LOS)	2016	2017 ERAS	2015 Baseline (VD cost)	2016	2017 ERAS
Hip									
Surgeon 1	34	41	39	5.06	5.51	4.05	13,851	14,008	11,986
Surgeon 2	71	102	79	4.11	3.49	2.72	15,159	13,758	14,061
Total - Hip	154	160	143	4.38	4.16	3.60	14,371	13,796	13,822
Knee									
Surgeon 1	129	139	92	2.76	2.74	2.41	10,917	10,245	10,149
Surgeon 2	19	69	55	3.00	2.87	2.58	15,057	12,992	14,363
Total - Knee	226	224	169	2.92	2.84	2.47	12,044	11,287	11,747
Grand total	380	384	312	3.52	3.39	2.99	12,987	12,333	12,698

Figure 1

1. Wolford ML, Palso K, Bercovitz A. Hospitalization for total hip replacement among inpatients aged 45 and over: United States, 2000–2010. NCHS data brief, no 186. Hyattsville, MD: National Center for Health Statistics. 2015.
2. Source: HCUP Nationwide Inpatient Sample (NIS); Wilson NA, et al., “Hip and Knee Implants: Current Trends and Policy Considerations,” Health Affairs (Millwood), 27 (2008): 1587–1598; Physician Executive Council interviews and analysis.