

Enhanced Recovery After Surgery®; following Arthroplasty versus Arthroscopy- a Comparative Analysis of Postoperative Opioid Prescriptions in Iowa's Billion Pill Pledge Program

Wali Ul-Hassan Pirzada, Simran Shamith, Terence Thomas, Sina Ramtin¹, Bret Dwight Alvis, Asif M Ilyas

¹Rothman Orthopaedic Institute

INTRODUCTION: Surgery and particularly postoperative opioid prescriptions have been long known to be a window for the development of drug dependence and diversion. In light of the ever increasing number of arthroscopy and arthroplasty patients in the United States, this study investigates whether a set of broadly targeting Enhanced Recovery After Surgery (ERAS) pathways currently implemented in nine hospitals in Iowa as part of the Billion Pill Pledge (BPP) Program can have an impact on opioid prescribing across both surgical procedures. The ERAS protocol consists of pre and post operative interventions. Before surgery, patients receive comprehensive education on pain, oral hydration 2 hours before surgery using ClearFast or Gatorade, and prophylactic medication including Tylenol 1000mg and Celebrex 400 mg for pain and Pregabalin 75mg for nerve sensitivity. During surgery, local and/or regional blocks are used. After surgery, a multi-modal pain management regimen is prescribed consisting of Tylenol, Celebrex, and Pregabalin. The oral opioid prescription is limited to a maximum of 10 opioid pills. By comparing the change in prescription sizes in arthroplasty versus arthroscopy patients, this study aims to provide insight into future steps needed in order to observe optimal opioid-minimizing impact on both patient populations.

METHODS:

A retrospective chart review was conducted on patients treated by 11 orthopedic surgeons at nine Iowa hospitals from November 2022 to March 2024. Patients were divided into arthroplasty (n=67) and arthroscopy (n=33) groups. Opioid quantities prescribed pre- and post-ERAS implementation were measured and converted to morphine milligram equivalents (MMEs). Statistical analyses included the Shapiro-Wilk test, Wilcoxon-Signed Rank test, Mann-Whitney U test, and Fisher's Exact tests.

RESULTS: Postoperatively, the mean pre-ERAS prescription was 389 MMEs for the overall cohort, with arthroplasty at 451 MMEs and arthroscopy at 264 MMEs. Post-ERAS, the overall mean postoperative prescription dropped to 194 MMEs, with arthroplasty at 210 MMEs and arthroscopy at 161 MMEs. Both groups saw significant reductions, with a 47% reduction in arthroplasty and 33% in arthroscopy ($p<.001$). Mean quantity consumed was 157 MMEs for arthroplasty and 78 MMEs for arthroscopy ($p<.001$). Arthroscopy patients had a higher mean percentage of MMEs prescribed leftover (60%) compared to arthroplasty patients (27%) ($p<.001$).

DISCUSSION AND CONCLUSION: ERAS pathways significantly reduced postoperative opioid prescriptions in both patient groups, with a greater reduction seen in arthroplasty patients. Despite the reduction, arthroscopy patients reported a higher percentage of unused opioids, indicating a need for more tailored ERAS protocols for different surgical procedures to minimize the potential for drug diversion. Pre-ERAS prescription trends showed higher initial opioid prescribing for arthroplasty, aligning with existing literature. Limitations include reliance on surgeon-estimated pre-ERAS prescription data and a lack of pre-ERAS unused opioid benchmarks.