

# Utilization of enhanced recovery after surgery (eras) protocol in gynecologic surgery

Rachel L. Hartman, MD<sup>1</sup>, Sanela Andelija, DO<sup>1</sup>, Natalie Hurlock, MPH<sup>2</sup>, James Baron, MD<sup>1</sup>, Stephen Zweibach, MD<sup>1</sup>, Bradley H. Sipe, MD<sup>3</sup>, Tiffany R. Tonismae, MD<sup>3</sup>, Miriah Denbo, MD<sup>4</sup>

1. Department of Obstetrics and Gynecology, HCA Healthcare/USF Morsani College of Medicine GME Program, HCA Florida Brandon Hospital, Brandon, FL, USA

2. Department of Graduate Medical Education, HCA Healthcare, Brentwood, TN, USA

3. Maternal, Fetal, and Neonatal Institute, Johns Hopkins All Children's Hospital, St. Petersburg, FL, USA

4. Department of Obstetrics and Gynecology, USF Morsani College of Medicine, Tampa, FL, USA

## Abstract

**PURPOSE:** The aim of this quality improvement (QI) project was to increase utilization of an ERAS protocol in gynecologic surgery at a high volume, suburban, community hospital. A user-friendly ERAS protocol and increased education were implemented to raise awareness and increase utilization of ERAS for benign hysterectomy cases.

**METHODS:** This QI project was approved by the HCA Institutional Review Board and implemented at HCA Florida Brandon Hospital. In order to standardize and increase compliance of ERAS use by all physicians, an ERAS pre-op and post-op order set specifically for gynecology surgery was created and made available to all physicians via the hospital's electronic medical record in Oct 2020. Additionally, an ERAS committee was formed with representation from OBGYN, Anesthesiology, Nursing, and Surgical Services to increase education, awareness, and utilization of the ERAS protocol. Standardized ERAS pre-operative admission forms replaced prior admission order set forms and became a requirement by all physicians to schedule any gynecology outpatient surgery. Final approval for all protocols and forms was obtained on January 25th, 2021. At that time, all physicians scheduling outpatient gynecology surgeries were required to utilize the ERAS pre-op admission set forms, pre-op and post-op order sets, or provide a written opt-out reason for not doing so.

The total number of benign gynecologic surgeries who were managed with ERAS protocol were collected in retrospectively for the 6 months preceding and prospectively for the 6 months following mandatory implementation of the ERAS protocol. Procedures included in the study were: total abdominal hysterectomy, vaginal hysterectomy, total laparoscopic hysterectomy, laparoscopic assisted vaginal hysterectomy, and robotic assisted hysterectomy with or without bilateral salpingo-oophorectomy. The primary outcome was utilization of ERAS order sets before and after implementation of a standardized opt-out protocol. Secondary outcomes included: hospital length of stay (LOS), post-operative pain score in the first 24 hours and post-operative narcotic use, measured in morphine milliequivalents (MME). It was hypothesized that implementation of the standardized protocol would result in a minimum 50% increase in ERAS utilization and decreased hospital LOS, pain score, and narcotic usage. Chi-square test and t-test were used to for statistical analysis as appropriate with  $p < 0.05$  considered statistically significant.

**RESULTS:** There were a total of 497 cases included in the study. There was a total of 222 hysterectomies performed in the 6 months preceding implementation and ERAS was utilized in 54 cases (24.32%). There was a total of 275 hysterectomies

performed in the 6 months following implementation and ERAS was utilized in 210 of the cases (76.36%), demonstrating a significant increase in ERAS protocol utilization after intervention,  $p < .0001$ , with an overall increase of 214% in utilization. When comparing pre- and post- intervention groups, there was a significant decrease in hospital length of stay (1.14 days vs 0.70 days,  $p < 0.0001$ ) and a decrease in narcotic use within the first 24 hours (44.8 MME vs 31.4 MME,  $p < 0.0001$ ). There was no difference in post-operative pain score between the groups (3.8 vs 3.7,  $p = 0.72$ ).

**CONCLUSIONS:** Standardized implementation of a user-friendly ERAS protocol was achieved and resulted in a significant increase in ERAS utilization among patients undergoing benign hysterectomy. Additionally, utilization of an ERAS protocol was associated with decreased hospital LOS and post-operative narcotic use. These results are consistent with published data supporting the benefits of ERAS and this project presents a method for implementation of ERAS protocols in busy, suburban, community hospitals.