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14 Evaluation of the american college of surgeons national surgical quality improvement program risk calculator to predict outcomes for hysterectomies performed by gynecologic surgeons
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OBJECTIVES: Main Objective of the study is to assess the utility of ACS calculator for predicting adverse outcomes after hysterectomy in the immediate 30-day post-operative period.

Specific aims:
- To compare the predicted risk and the observed risk of post-operative complications after hysterectomy.
- To evaluate the accuracy of the ACS risk calculator in predicting Length of stay, readmission to the hospital and surgical site infection.

MATERIALS AND METHODS: This is a prospective cohort study of hysterectomies performed at a large community based academic hospital from January to April 2019. All types of hysterectomies by various subspecialties were included in this cohort: benign gynecology, urogynecology and gynecologic oncology. Preoperative surgical data including demographics, 21 de-identified surgical variables and 30-day postoperative complications were abstracted from the electronic health records and were entered into the ACS NSQIP risk calculator. Continuous parameters were checked for normality by Kolmogorov—Smirnov testing. Summary statistics were analyzed. Mean, standard deviation (SD) and median were reported. Continuous variables were compared using t-tests and proportions were compared using Fischer’s exact test or Chi-square when appropriate. Three metrics were used to evaluate the predictive validity of the ACS-NSQIP surgical risk calculator: the c-statistic; the Hosmer-Lemeshow (HL) statistic; and the Brier score (B).

RESULTS: There were 634 hysterectomies that were performed during the study period from January to April 2019. Patients in this cohort were predominantly 55 years old, white (53%), and overweight (BMI 30). In patients with postoperative complications, length of hospital stay in hours (32.6 [5.1-507.3] vs. 29.6 [3.9-170.2], \( P = 0.009 \)) and readmission (3/54 [5.6%] vs. 3/580 [0.5%], \( P = 0.01 \)) were significantly higher than in patients with no post-operative complications. Predicted perioperative adverse events were significantly higher than actual adverse events across all domains. C-statistic for return to operating room, renal failure, and readmission were 0.607 (95% C-statistic index [CI] 0.370-0.845), 0.882 (95% CI = 0.802-0.962), 0.637 (95% CI = 0.524-0.750) respectively. Brier scores approached one in all categorical domains.

CONCLUSION: The ACS NSQIP surgical risk calculator holds the promise of predicting postoperative complications or length of stay for patients undergoing hysterectomy. Further adjustment to this important tool is required before it can be used in clinical setting.