

# Robotic Surgery Outcomes After The Learning Curve: Does Robotic Surgery Improve The Quality Health Outcome “Readmission <30 >Days” in Patients Having Hysterectomy For Benign Disease?

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# Robotic surgery outcomes after the learning curve: Does robotic surgery improve the quality health outcome “readmission <30 days” in patients having hysterectomy for benign disease?

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## Introduction:

The objective of this study was to evaluate quality outcomes in high-volume surgeons after benign gynecologic surgery.

- The primary outcome measure was “Readmission <30 days”.
- Secondary outcome measures included cost of readmissions, diagnosis for readmissions, EBL and LOS.

## Methods:

All patients who underwent a hysterectomy for benign disease from 6/2006-6/2011 were extracted from our database and de-identified. Patients were grouped by 4 surgical routes: robotic, vaginal, laparoscopic, open.

- Inclusion criteria for high volume surgeons were completion of 20 cases in any given year.
  - The first 20 cases within each cohort were considered part of the learning curve and removed from analysis to measure “after the learning curve.”

Demographic data reviewed included age and BMI. Groups were compared using chi-square and logistic regression. This study was IRB-approved at LVHN.

**Table 1.** Population Characteristics

Characteristic	Vaginal (n=235)	Robotic (n=179)	Laparoscopic (n=255)	Open (n=450)
Age	56	49	47	50
BMI	29.1	31.6	29.8	31.8

**Table 2.** Estimated Blood Loss (EBL) and Length of Stay (LOS) Compared to Vaginal Hysterectomy

	Vaginal (n=235)	Robotic (n=179)	p-value	Laparoscopic (n=255)	p-value	Open (n=450)	p-value
EBL (mL)	318	103	p<.01	196	p<0.1	395	p<.04
LOS (min)	2495	1989	p<.01	2123	p<.003	5935	p<0.1

**Table 3.** Readmission Diagnoses

Readmission Reasons	Vaginal (n=235)	Robotic (n=179)	Laparoscopic (n=255)	Open (n=450)
Fever/Infection	8	0	4	5
Wound Complication	0	0	0	11
Medical Co-morbidity	4	0	2	7
Vaginal Bleeding	0	0	3	0
Uncontrolled Pain	0	2	1	1
Bowel Issues (Ileus or Obstruction)	0	0	2	7
<b>Total</b>	(12/235) <b>5.1%</b>	(2/180) <b>1.1%</b>	(12/255) <b>4.7%</b>	(31/450) <b>6.9%</b>
<b>Total Cost</b>	\$76,300	\$16,525	\$97,840	\$354,855

## Results:

A total of 1119 patients (179 robotic, 235 vaginal, 255 laparoscopic, 450 open) met the inclusion criteria. The readmission rate for patients having robotic hysterectomy was 1.1% (2/179) compared with 5.1% (12/235) of patients who had vaginal hysterectomy (p=0.03, odds ratio [OR] = 4.8, 95% confidence interval [CI] 0.0078 – 0.0720). Readmission rates for cases performed via laparoscopy and open were similar to vaginal hysterectomy, respectively, 4.7% (12/255), 6.9% (31/450) and 5.1% (p=0.84, p=0.36). The sum of cost for vaginal, laparoscopic, open and robotic-assisted routes of hysterectomies were \$76,300, \$97,840, \$354,855, and \$16,525, respectively.

## Conclusion:

After the learning curve, patients who had a vaginal, laparoscopic or open hysterectomy for benign disease had a 3-fold higher chance to be readmitted within 30 postoperative days compared to patients who had a robotic hysterectomy.