

# Bilateral Salpingo-oophorectomy during Benign Hysterectomy: Predictors and changes in practice after the ACOG 2008 Practice Bulletin

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## BACKGROUND

- Hysterectomy is one of the most common major surgical procedures in women (most often for benign gynecologic conditions)<sup>1</sup>. Elective oophorectomy is routinely performed during benign hysterectomy.
- In premenopausal women, the risks of oophorectomy<sup>1-3</sup> might outweigh its benefits. Even in post-menopausal women, the ovary continues to produce essential hormones<sup>5,6</sup>.
- In 2008, ACOG revised its practice bulletin to recommend retaining normal ovaries in women not at increased genetic risk of ovarian diseases<sup>7</sup>.
- Little is known about the rate of elective bilateral salpingo-oophorectomy (BSO) for women with benign uterine diseases at Johns Hopkins Hospital (JHH). Even less is known about patient and surgeon characteristics associated with this procedure.

## STUDY OBJECTIVE

- Examine the rate and trends of inappropriate BSO during hysterectomy for benign indications at JHH before and after the 2008 ACOG guideline.
  - Identify patient factors and surgeon predictors associated with this practice.
- Set light on changes in clinical practice following the ACOG guideline and provide data to guide gynecologic surgery quality improvement at JHH.

## METHODS

- Study design: retrospective cohort study
- Setting: all hysterectomy surgeries performed from 2004-2014 at Johns Hopkins Hospital
- Population:
  - Inclusion criteria: pre-menopausal women who underwent hysterectomies for benign indications.
  - Exclusion criteria: hysterectomies performed for presumed malignant or other appropriate indications, risk reduction.
- Data collection:
  - Patient data (demographics, clinical variables, surgical variables, indications for surgery, and surgical outcomes) were collected from EPIC.
  - Surgeons practice data were collected from publicly available departmental websites.
- Statistical analysis: multivariate logistic regression using Stata

## CONCLUSIONS

- In pre-menopausal women undergoing benign hysterectomy 2004-2014, ~1/4 received a BSO without an appropriate indication.
- The rate of inappropriate BSO decreased significantly after 2008, suggesting that the ACOG guideline was adopted into clinical practice.
- White race, low surgeon hysterectomy volume, and gynecologic oncologist subspecialty were associated with a higher rate of inappropriate BSO.

## LIMITATIONS

- Retrospective cohort study design
- Single center study

## FUTURE DIRECTION

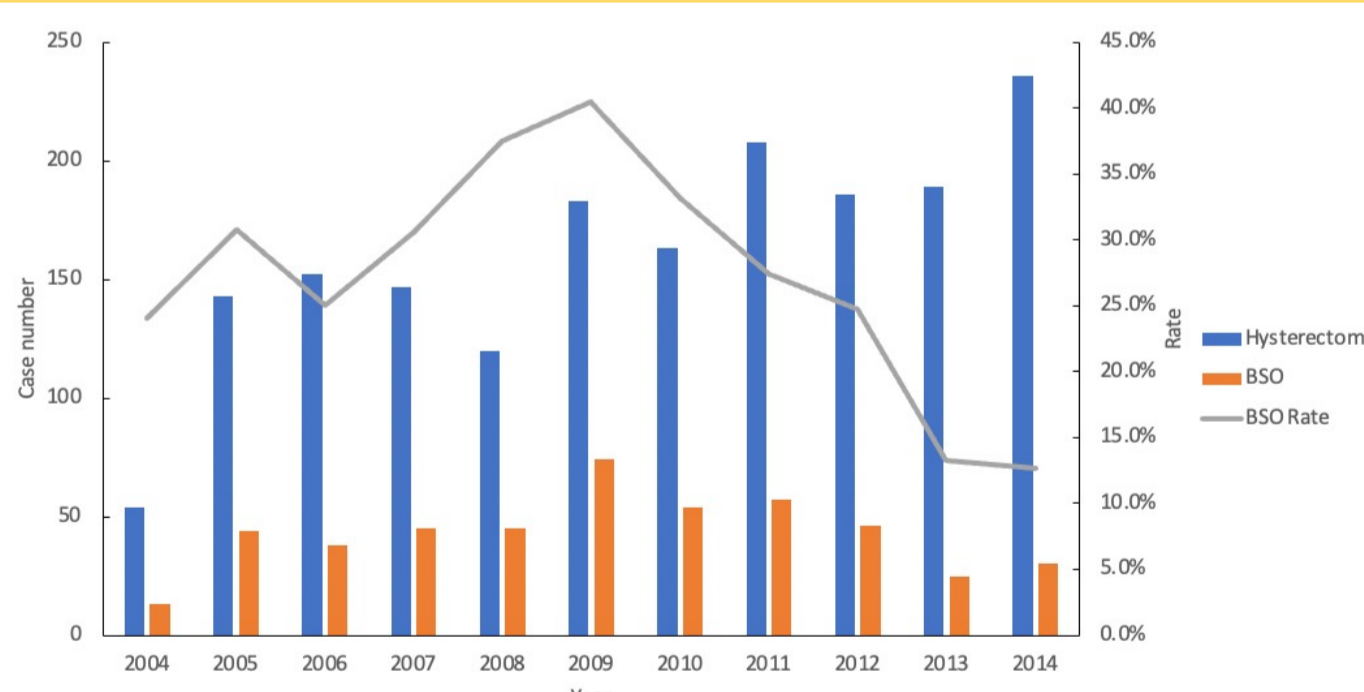
- Expand our study with more recent data (2015-2021) from JHH and data from the rest of the JHHS-affiliated hospitals.
- Ultimately, the study will examine ~10,000 hysterectomies in the JHHS to inform educational interventions that reduce the rate of inappropriate BSO to <5%.

## RESULTS

	Benign premenopausal hysterectomy	Without BSO n (%)	With BSO n (%)
<b>Total</b>	1,781	1,310 (73.6%)	471 (26.4%)
<b>Race</b>	White	653	409 (62.6%) 244 (37.4%)
	Black	1,006	815 (81.0%) 191 (19.0%)
	Other	122	86 (70.5%) 36 (29.5%)
<b>Procedure Type</b>	Open/ abdominal	872	594 (68.1%) 278 (31.9%)
	Minimally invasive	909	716 (78.8%) 193 (21.2%)
<b>Subspecialty</b>	Ob-Gyn Generalist	1,319	1,092 (82.8%) 227 (17.2%)
	Gyn-Onc specialist	462	218 (47.2%) 244 (52.8%)
<b>Surgeon Volume</b>	Very low	117	86 (73.5%) 31 (26.5%)
	Low	355	269 (75.8%) 86 (24.2%)
	High	1,309	955 (73.0%) 354 (27.9%)
<b>Indications</b>	Fibroid	982	814 (82.9%) 168 (17.1%)
	Menorrhagia	366	293 (80.1%) 73 (19.9%)
	Pain	203	141 (69.5%) 62 (30.5%)
	Others	308	144 (46.8%) 164 (53.2%)

**Table 1:** Demographics of premenopausal patients undergoing benign hysterectomy (2004-2014)

**Table 2:** Regression analysis of inappropriate BSO based on patient and surgeon characteristics



**Figure 1:** Rate of inappropriate BSO during benign premenopausal hysterectomy (2004-2014)

	Adjusted OR (95% CI)	P value	
<b>Time period</b>	Before guideline	Ref	
	After guideline	0.75 (0.58 - 0.98)	0.04
<b>Race</b>	White	Ref	
	Black	0.68 (0.52 - 0.90)	0.01
	Other	0.59 (0.36 - 0.98)	0.04
<b>Specialties</b>	Other specialties	Ref	
	Gyn-Onc	4.62 (3.39 - 6.29)	<0.001
<b>Surgeon volume</b>	High	Ref	
	Low	2.00 (1.44 - 2.78)	<0.001

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