**Conclusions:** PNI is associated with differences in both short and long-term outcomes in patients with epithelial ovarian carcinoma. This information may be useful in predicting survival, and may facilitate improved patient stratification, risk assessment, and medical optimization. Future studies with larger populations are needed to confirm these findings.

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## Poster #32

### The effect of New Hampshire State legislation changes on opioid prescribing practices for gynecologic oncology surgery in a tertiary care setting

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**Objectives:** The objective of this study is to determine the impact of HB 1423, legislation requiring participation in the state prescription drug monitoring program (PDMP), on opioid prescribing practices for acute postoperative pain control following gynecologic oncology surgery.

**Methods:** Patients who underwent gynecologic surgery for a cancer diagnosis between January 2016 to June 2016 (pre-HB 1423) and April 2017 to September 2017 (post-HB 1423) were included in this retrospective study. As new legislation was passed on January 1, 2017, a 6-month washout period prior to adaptation and 3-month period afterwards was included. The mandatory changes included completion of a risk stratification tool and querying the PDMP for each patient, as well as completing a narcotic-specific consent form prior to prescribing narcotics. The primary outcome is the amount of opioids prescribed in morphine milligram equivalents (MME) upon hospital discharge following surgery. Each opioid prescription at time of discharge was converted into MME; the mean MME was calculated and compared between the pre-legislation group and post-legislation group. Student's t-test and Chi-square analysis were used to compare demographic variables between groups.

**Results:** Of the 288 patients who underwent gynecologic surgery for a cancer diagnosis, 141 patients were pre-legislation change and 145 patients were post-legislation change. There was no significant difference in age, BMI, procedure type, estimated blood loss (EBL), use of regional pain control, or length of hospital stay between the two groups. There was also no significant difference in patients with chronic pain, history of illicit drug use or chronic narcotic use. A significant difference was observed between the amount of opioids prescribed pre-legislation and post-legislation, 180.9 +/- 14.5 MME compared to 66.6 +/- 5.8 MME respectively ($p < 0.0001$). Moreover, a significant difference was seen in the amount of opioids prescribed for both open and laparoscopic procedures. Among patients undergoing open procedures, there was a 55% reduction in MME prescribed post-legislation. Similarly, there was a 67% decrease in opioids prescribed for patients' status post laparoscopic surgery ($p < 0.0001$). The number of patients that were discharged without a prescription increased post-HB 1423 adaptation from 5.4% to 11.7% of patients following an open procedure, and 8.6% to 18% of patients following laparoscopic surgery.

**Conclusions:** Opioid prescribing practices for acute postoperative pain control in gynecology oncology patients changed significantly following adaption of the New Hampshire State Legislation. Further studies are needed to determine the impact of these legislative changes on patient satisfaction, rates of continued opioid use after surgery, and rates of opioid addiction state-wide.

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## Poster #33

### Factors associated with operating room times in robotic gynecologic oncologic surgery

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**Objectives:** Operating room time is an expensive and limited resource in the hospital. Robotic surgery has become a mainstay of gynecologic oncologic surgery; however, prolonged operative times are a known limitation. This study assesses factors associated with "position-and-prep" time and operative time in gynecologic oncologic surgery.

**Methods:** A retrospective cohort study was performed including all gynecologic oncologic patients undergoing robotic surgery between June 2016 and May 2018 at a single, academic health center across three hospitals. Patient, provider and facility factors were extracted from a central electronic medical record system. The primary outcomes were "position-and-prep time" (the interval between completion of anesthesia induction and skin incision) and operative time (skin incision to skin closure). $X^2$ tests and ANOVA tests were used for selected comparisons. Univariate and multivariate linear regression was used to assess for factors associated with longer times. All analyses were performed using STATA, Version 15.1

**Results:** A total of 796 robotic surgeries were performed in the study period by eight gynecologic oncologists. Patients had a mean age of 56.6 years (± 12.7 years) and a mean BMI of 31.9 kg/m$^2$ (± 8.6kg/m$^2$). 7.8% of the population was morbidly obese (BMI ≥ 40kg/m$^2$). 88.9% of the cases were total or radical hysterectomies. The mean position-and-prep time was 23.8 minutes (± 27.9 min) and the mean operative time was 168.2 min (± 65.7 min). The mean prep times differed significantly across the 3 locations: 18.7 min, 22.3 min and 41.3min ($P< 0.001$). Operative times were also significantly different across locations: 151.7 min, 168.0 min, 203.0 min ($P< 0.001$). Compared to patients with a BMI < 40 kg/m$^2$, morbid obesity was not associated with prep time ($P = 0.40$); however, it was significantly associated with longer operative times ($P<0.001$). In multivariate regression accounting for location, morbid obesity and number of surgeons/trainees in the case, hospital location was the only predictor of prep time ($P<0.001$). Factors associated with increased operative time in multivariate regression included performance of hysterectomy ($P<0.001$), performance of lymphadenectomy ($P<0.001$), location ($P <0.001$), morbid obesity ($P=0.006$) and increased number of surgeons ($P<0.001$).

**Conclusions:** There was significant variation in prep time and operative time for gynecologic oncology robotic surgery across hospitals in a single academic institution. Position-and-prep time seems to be driven by immeasurable processes by the individual facility or surgeons. In addition to surgery type and morbid obesity, the surgical personnel, including attending surgeon and trainees, were associated with increased operative time. Operating room efficiency may be increased by collaboratively improving processes and techniques across facilities and surgeons.

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## Poster #34

### Flatus: Flatus after undergoing surgery: Creation of a nomogram to predict postoperative ileus after gynecologic oncologic exploratory laparotomy

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**Objectives:** Postoperative ileus is a common complication after gynecologic oncology laparotomies. It impacts patient satisfaction and comfort and increases costs to our healthcare system by prolonging length of stay and readmissions. Patient reported flatus has been used as a criterion to avoid premature discharge but may prolong hospital stay unnecessarily in a subset of patients. The aims of our study were to: 1) identify predictive factors that lead to the development of a postoperative ileus and 2) create a nomogram to predict the risk of developing an ileus so postoperative care can be modified appropriately.

**Methods:** From October 2016 to August 2017, 234 patients were identified who had an exploratory laparotomy by a gynecologic oncologist after implementation of an Enhanced Recovery After Surgery (ERAS) protocol at a single institution. Data was collected through the ERAS monitoring program and supplemented with individual chart review. Any patients undergoing surgery for a bowel obstruction were excluded. An ileus was diagnosed either by the surgeon as documented in the chart or if the patient met 2 of the 3 following postoperative criteria: 1) nausea or vomiting 2) abdominal distention and 3) radiologic confirmation of an ileus. Univariable logistic regression analysis was conducted to identify any variables associated with a postoperative ileus. Those variables with a p-value < 0.10 or those deemed clinically significant regardless of p-value were included in the multivariable analysis. A backward stepwise model was then performed to reach the final model that was the basis of the nomogram created to predict the risk of developing a postoperative ileus.

**Results:** Of the cases reviewed, 219 met inclusion, including 142 (64.8%) cases with malignancy on final pathology. Thirty-six (16.4%) patients developed a postoperative ileus. Those with and without ileus were compared. Sociodemographics were similar between the two groups except those who developed am ileus had a higher rate of smoking, 61.1% (22/36) vs. 42.1% (77/183) and a higher ASA Score, 2.8 vs. 2.6 (p=0.03 and p=0.01 respectively). Significant intraoperative and postoperative factors on univariable analysis included age, estimated blood loss and development of a postoperative venous thromboembolism or urinary tract infection (p <0.10). Smoking history (p=0.02) was the only independent predictive factor for postoperative ileus on multivariable analysis.

**Conclusions:** The rate of postoperative ileus development in patients undergoing gynecologic oncologic laparotomies was 16%, which is in line with previous literature. Smoking history was the only significant independent predictive factor. A nomogram was devised with the intent to predict postoperative ileus. We intend for this nomogram to be tested and validated in future studies with the goal of identifying patients appropriate for discharge prior to flatus.

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## Poster #35

## Counseling and documentation for modifiable cervical cancer risk factors: Quality improvement leading to increased reimbursement

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**Objectives:** This quality improvement (QI) study aimed to correct shortcomings in documentation of cervical dysplasia risk factors at clinic visits and implement new note templates to improve counseling for modifiable risk factors, as well as reimbursement rates.

**Methods:** Data was collected at all cervical dysplasia procedure visits from 4/13- 8/10/18 (n=187), and after 6/28/2018, a new note template was introduced with documentation of various risk factors including smoking and HPV vaccination status, and counseling on their contribution to the development of cervical cancer. Data was analyzed using a two-tailed students t-test. Reimbursement of tobacco cessation counseling was defined as $9.43 by current procedural terminology (CPT) code 99406 with modifier 25. Reimbursement of HPV vaccination was defined as $10.00 by CPT code 90649.

**Results:** Study populations before and after the intervention were not significantly different in median age, procedure type, and dysplasia pathology. Instituting a new note template significantly increased the rate of documentation of all targeted risk factors. Prior to implementation of the QI study, 89% of opportunities to counsel on smoking cessation were missed, compared to 6% after implementation (Table 1). This correlates to missed revenue of over $3800 annually. Prior to implementation of the QI study, 12% of dysplasia encounters included documentation of HPV vaccination status, versus 98% after implementation. Of these, 37.5% received counseling pre-QI and 78.5% received counseling post-QI. Similar percentage of patients were eligible for vaccination, 12.7% pre-QI and 16.5% post-QI. This correlates to $76 annually in clinic revenue.

**Table 1**
Documentation of cervical dysplasia risk factors and counseling provided to patients at each visit before and after the implementation of the quality improvement (QI) note template.

| | | Pre-QI | Post-QI | p-value |
|---|---|---|---|---|
| **Risk Factor Documentation** | Contraception | 70.6% | 96.5% | <0.001 |
| | History of STI | 52.9% | 97.65% | <0.001 |
| | Smoking status | 67.7% | 97.65% | <0.001 |
| | Vaccination status | 11.8% | 97.65% | <0.001 |
| | HIV status | 1.3% | 89.41% | <0.001 |
| **Counseling provided** | Smoking cessation | 11.11% | 93.55% | <0.001 |
| | HPV vaccination for patients ≤ age 26 | 37.50% | 78.57% | 0.058 |

**Conclusions:** The intervention significantly improved documentation of risk factors and rate of smoking cessation counseling. This also increased an area for reimbursement through smoking cessation counseling. While HPV vaccination is not a large source of income, the template prompts providers to offer vaccination and to counsel on the importance of vaccination for the young people in our patients' lives.

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## Poster #36

## Minimally invasive surgery rate as a quality metric: Feasibility and validity

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**Objectives:** Minimally invasive surgery (MIS) is a quality metric for endometrial cancer (EC) established by the Society of Gynecologic Oncology. A hospital-level rate of 80% MIS hysterectomy for EC has been proposed. Our study objectives were (1) to determine the frequency with which Commission on Cancer accredited hospitals met this metric and (2) to compare patient characteristics, patterns of care, and outcomes by hospitals meeting or not meeting this metric.

**Methods:** A retrospective study of women who underwent hysterectomy for EC in 2015 was conducted using the National Cancer Database (NCDB). Inclusion criteria were epithelial histology, Charleston comorbidity score of 0, stage I-III disease, and surgery at a hospital caring for ≥20 EC patients per year. Patient characteristics,