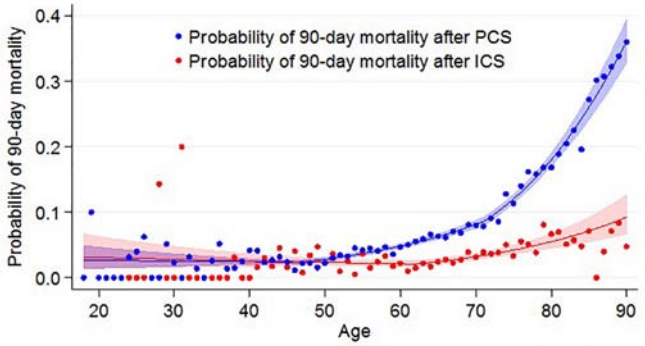
ovarian cancer, treated in Commission on Cancer accredited hospitals in the United States between 2004-2013. We fit logistic joinpoint models to quantify the probability of 90-day postoperative mortality as a function of age for women undergoing primary (PCS) and interval (ICS) cytoreductive surgery. We fit separate models to estimate crude and adjusted age-specific relative odds of postoperative death after PCS relative to ICS.

Results: We identified 47,117 of whom 37,024 (78.5%) underwent PCS and 10,153 (21.5%) underwent ICS. Overall, 90-day mortality was more common after PCS (7.2%; 2,658 deaths) than ICS (3.1%; 312 deaths). Age-related trends in 90-day mortality differed between PCS and ICS ($p_{interaction}$ <0.001, see Figure). Women age ≤47 experienced no age-related increase in risk of 90-day mortality after ICS (p =0.36) or PCS (p=0.75). Among women who underwent PCS, the odds of 90-day postoperative mortality began rising at age 47, increasing by 5.7% per year (95% CI 5.0-6.5, p<0.001) until age 71, and by 9.9% per year (95% CI 8.8-10.9; p<0.001) thereafter. In contrast, odds of 90-day mortality after ICS began to increase at age 62, and increased steadily by 5.7% per year (95% CI 3.9-7.5, p<0.001). By age 75 the probability of 90-day postoperative mortality after ICS was 4.2% (95% CI 3.6-4.9) compared with 12.3% after PCS (95% CI 11.4-12.7). By age 85 these probabilities increased to 7.2% (95% CI 5.5-9.2) and 26.0% (95 CI 24.1-27.9) respectively.

Conclusions: Women undergoing PCS incurred an age-related risk of postoperative mortality at a younger age, and to of a greater magnitude, than those undergoing ICS. Among older women, NACT may reduce the frequency on unbeneficial cytoreductive surgery.



	<50	50-59	60-69	70-79	80+
Primary cytoreductive surgery, n	6,342	9,764	10,721	7,540	2,657
Interval cytoreductive surgery, n	1,225	2,500	3,302	2,429	697
Crude odds ratio of 90-day mortality (95% CI)	0.9 (0.6-1.3)	1.7 (1.3-2.3)	2.8 (2.2-3.7)	2.9 (2.3-3.6)	4.7 (3.3-6.7)
Adjusted odds ratio of 90-day mortality (95% CI)	1.0 (0.6-1.4)	2.0 (1.4-2.8)	3.2 (2.4-4.3)	3.1 (2.5-4.0)	4.3 (3.0-6.1)

Observed age-specific probabilities of 90-day mortality after primary cytoreductive surgery (blue dots) and interval cytoreductive surgery (red dots) are plotted along with predicted probabilities (solid lines) and 95% confidence intervals (shaded areas) from piecewise joinpoint regression models. The number of operations, as well as crude and adjusted odds ratios for 90-day mortality after primary cytoreductive surgery, relative to interval debulking surgery, are tabulated by age group. Adjusted odds ratios are adjusted for year of diagnosis, histologic type, grade, stage, comorbidity index, geographic region, insurance type, hospital volume, and cancer program.

PCS: primary cytoreductive surgery. ICS: interval cytoreductive surgery. CI: confidence interval.

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Poster #26

Survey of practice patterns regarding the use of minimally invasive surgery for the treatment of ovarian cancer

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Objectives: The objective of this study was to assess the practice patterns of gynecologic oncologists regarding the use of minimally invasive surgery (MIS) for the treatment of ovarian cancer.

Methods: An electronic survey using REDCap was sent to all physician members of the Society of Gynecologic Oncologists. Responses were confidential with no identifying information collected from participants. Statistical analysis was descriptive in nature. Study approved by the authors' home Institutional Review Board.

Results: There were 234 responses to the survey. Most respondents were part of an academic practice (64.7%) that trained fellows (53.3%) or residents (94%). Practice location was evenly distributed throughout the United States. Number of female and male respondents was evenly split. The vast majority of respondents (88%) reported performing more than half of all surgeries using MIS with 44.4% performing more than three-quarters of all surgeries using MIS. The most common procedures currently performed using MIS were: hysterectomy (98.3%), lymphadenectomy (95.7%), omentectomy (90.1%), appendectomy (88.5%), and radical hysterectomy (84.5%). Several respondents were currently performing advanced procedures laparoscopically with many others interested in performing these procedures in the future: cytoreductive surgery (34.8%, 16.7%), splenectomy (15.1%, 30.6%), diaphragmatic stripping (18.1%, 26.3%), bowel resection and reanastomosis (19.7%, 42.5%), and low anterior resection (16.7%, 39.1%). Three-quarters (74.8%) of respondents reported currently using MIS for the treatment of ovarian cancer with diagnostic laparoscopy (90.1%), primary staging (76.7%), and interval cytoreductive surgery (72.7%) being the most common procedures performed. The most common cited benefits of MIS for the treatment of ovarian cancer included decreased blood loss (65.1%), decreased hospital LOS (81.2%), and decreased morbidity (76.9%). The most common cited barriers to the treatment of ovarian cancer with MIS included leaving residual disease behind (84.1%) and lack of scientific validation for MIS compared to laparotomy (58.0%).

Conclusions: Minimally invasive surgery is currently being used regularly for the treatment of ovarian cancer. Interest among gynecologic oncologists to perform more advanced surgical procedures in the setting of ovarian cancer via minimally invasive routes is high. Our findings underscore the need to validate the use of MIS in ovarian cancer treatment.

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Poster #27

Opportunistic salpingectomy would significantly reduce ovarian cancer mortality and would reduce overall healthcare expenditures

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Objectives: This study was conducted to determine the cost-effectiveness of opportunistic salpingectomy at the time of tubal ligation and hysterectomy and the impact of this procedure on ovarian cancer mortality.

Methods: A Markov state transition model was constructed including hysterectomy, tubal ligation, and ovarian cancer. Transition probabilities between the states were informed by previously reported population data. This model was used to predict ovarian cancer incidence and mortality with and without opportunistic salpingectomy at tubal ligation or hysterectomy, as well as the costs associated with these procedures.

Results: The recursive Markov model was run from age 20 to 85 in one-year intervals with a half step correction and included age adjusted rates of tubal ligation, hysterectomy (with and without

oophorectomy), and ovarian cancer. Opportunistic salpingectomy at the time of tubal ligation will reduce ovarian cancer mortality by 8.15%. Opportunistic salpingectomy at the time of hysterectomy will reduce ovarian cancer mortality by 5.82%. Both strategies are highly cost effective when considering the cost of opportunistic salpingectomy alone. The excess cost of opportunistic salpingectomy at the time of tubal ligation was $280.44 with an ICER of $16,910.48 per life-yr (LY) and $14,453.43 per Quality Adjusted Life Year (QALY) when adjusting for ovarian cancer with a utility of 0.64. The ICER for opportunistic salpingectomy during hysterectomy at a cost of $112.32 was $11,278.09 per LY and $9,378.05 per QALY. However, when adding the cost of ovarian cancer, both procedures demonstrate a significant cost savings to the health care system. It is estimated that the per capita life-time savings for opportunistic salpingectomy at both tubal ligation and hysterectomy would be $225.31. This savings would increase to $491.38 with a 3% annual discount rate.

Conclusions: Universal opportunistic salpingectomy would prevent 1,967 deaths per year from ovarian cancer with a health care savings of 851 million dollars per year. Given these data, opportunistic salpingectomy should be uniformly practiced and covered by third party payers.

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Poster #28

A prospective assessment of patient preferences in ovarian cancer: What do patients value the most?

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Objectives: Discussions regarding treatment in ovarian cancer often involve the trade-off between survival benefits and complications/toxicity. However, little is known about how patients value these different aspects. The American Society of Clinical Oncology defines value in cancer care as clinical benefit in the context of morbidity and costs. Our objective was to elucidate patient preferences in ovarian cancer, and ascertain what they value the most.

Methods: From 1/2017 to 5/2017, 50 women with ovarian cancer were enrolled in this prospective study. 11 attributes related to having cancer or its treatment were assessed. Patients rated each attribute using a Likert scale from 1 (not important) to 5 (deeply important), and ranked them from the most important (1) to the least important (11). To assess preferences regarding the trade-off between survival and complications, they were asked how many additional months of overall survival a treatment approach would have to give them if it increased the complication risk from 10% to 30%, or the risk of getting a colostomy from 1% to 10%, respectively. Appropriate statistical tests were used.

Results: The median patient age was 63, the majority had Stage IIIC cancer (64%), and 70% had experienced a recurrence. Overall survival was deemed the most important attribute by patients (mean ranking 2.1, mean rating 4.8/5, with 58% of them ranking it at as the most important one). This was followed by progression-free survival, physical/mental well-being, permanent complications/sequelae (i.e. permanent colostomy), return to pre-treatment activities of daily living, time off treatment, and temporary complications/sequelae (Table). Chemotherapy schedule/type, assistance with care, cost of care, and logistical issues were the least important attributes. There were no differences in preferences between women who recurred vs those who did not. A treatment approach that increased the major complication risk from 10% to 30% would have to yield patients an additional median overall survival of 6m (range 0.25 – 54m) to be acceptable. A treatment approach that increased the colostomy risk from 1% to 10% would also have to give patients an additional median overall survival of 6m (range 0.25 – 48m).

Conclusions: Women with ovarian cancer value overall survival the most, followed by progression-free survival and physical/mental well-being. A treatment approach that increases the risk of complications or getting a colostomy would have to give patients an additional 6m of overall survival to be acceptable.

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Poster #29

Concurrent hysterectomy at the tine of risk-reducing surgery for patients with BRCA mutations

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Objectives: Risk-reducing salpingo-oophorectomy (RRSO) is standard management for women with *BRCA1/2* mutations, however the role of concurrent hysterectomy (CH) remains controversial. Shu et al. published the largest study addressing endometrial cancer among BRCA carriers in 2016, suggesting an increased risk of serous uterine cancer in women with BRCA1 mutations. Currently, there is no official recommendation for CH with RRSO however many practitioners offer this combined procedure. We sought to review our institutional experience with RRSO and CH.

Methods: Data was abstracted from the medical record for all patients at a single institution with *BRCA1/2* mutations undergoing RRSO between 2003-2018. Univariate tests were applied based on variable distribution and associations between categorical variables were evaluated by chi-square tests or Fisher's exact tests as appropriate for category size.

Results: One hundred fifty-five patients underwent RRSO (*BRCA1* 81, 53%; *BRCA2* 71, 45%; *BRCA1* and *BRCA2* 3, 2%). Thirty-six patients underwent CH at time of RRSO (23%). The median age at time of RRSO was 48 years (range 33-73). Patients undergoing CH were significantly younger than those undergoing RRSO alone (45 vs. 49.5, P=0.01). Seventy-two patients (46%) had a history of breast cancer (42% of patients with breast cancer had CH vs. 50% of patients without breast cancer had CH, P=0.45). CH was more common among women with *BRCA1* mutations vs. *BRCA2* mutations (31% vs. 14%, P=0.02). Uterine cancer risk-reduction was the most common indication for CH (n=22, 58%) (Figure 1). Following the 2016 publication, CH was significantly more common compared to prior, 43% vs. 18%, respectively (P=0.006).

Figure 1- Reason for hysterectomy