Conclusions: Preliminary data suggest safety of RA IDS compared to OA IDS with no difference in time to recurrence or in time to initiation of chemotherapy. Future research should explore whether minimally invasive surgery could be used to shorten time to re-initiation of chemotherapy which could improve oncologic outcomes.

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Poster #23

Independent radiologic review in ovarian cancer research

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Objectives: Independent radiologic review (IRR) has been increasingly utilized in ovarian cancer clinical trials to minimize potential bias when evaluating for progression. Though there is potential for bias in non-blinded trials given the inherent subjective nature of progression-free survival (PFS) evaluation, an IRR has the potential to introduce new biases, and is associated with significant added study cost and logistical burden. The aim of our study is to evaluate the concordance in PFS and HR between investigator (INV) and (IRR) among key trials in ovarian cancer.

Methods: PubMed was systematically queried for randomized controlled trials involving ovarian cancer, utilizing the terms "ovarian cancer" plus "independent radiologic review", "independent central review", and "independent review committee". All landmark randomized phase II-III, registration, and GOG ovarian cancer trials in addition to their supplemental data, if available, were reviewed. Studies were excluded if patients were not randomized, if they reported IRR data only and if they did not utilize IRR in the study. Studies with a separate IRR analysis were included.

Results: Eight studies met study criteria out of 29 evaluated. Differences in PFS medians and HR's were analyzed between INV and IRR for each study and associations were calculated utilizing logistic regression analysis. The PFS between INV and IRR was found to have a mean difference of -1.76 months (INV-IRR), median -0.4 (95% CI -3.44 - -0.08). The degree of association between INV and IRR HR was high by logistic regression analysis, with $R^2 = 0.957$ (Correlation coefficient 0.97; 95% CI 0.91-0.99; P<0.0001). This illustrates in the majority of cases the INV HR and IRR HR are highly concordant. The HR ratio was determined for each study (HR IRR/HR INV) (Table 1) with a mean HR ratio of 1.03 (95% CI, 0.94-1.12, p=0.82) and an estimated HR difference illustrating a 10% average absolute difference between the evaluations.

Conclusions: Concordance was noted between both INV and IRR reported PFS and HR data in ovarian cancer. Since IRR adds significant cost, logistical burden, and potential bias while not altering the primary endpoint conclusion in any of these trials, the need for IRR is questionable and these data support use of primary investigator assessed PFS.

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Poster #24

Clinical trial participation and measures of aggressive care at the end of life in patients with ovarian cancer

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Objectives: Many patients with advanced ovarian cancer seek investigational therapy as a therapeutic option. In non-gynecologic cancers, clinical trial participation has been associated with measures of aggressive care at the end of life. The objective of this investigation was to examine the association between participation in clinical trials and measures of aggressive care as well as hospice care at the end of life among ovarian cancer patients.

Methods: With institutional approval, we conducted a retrospective review of all women treated for ovarian cancer at our institution from 2010 through 2016. We examined several clinical variables which have been identified by the National Quality Forum as measures of aggressive end of life (EOL) care including chemotherapy in the last 14 days of life, ICU admission in the last 30 days of life, and death in the acute care setting. Data were analyzed with univariable and multivariable parametric and non-parametric testing, and survivals were calculated using the Kaplan-Meier method and cox-proportional hazard models.

Results: We identified 175 women treated for ovarian cancer that died of disease, 19% of whom were enrolled in at least 1 clinical trial. Patients who enrolled in clinical trials experienced a higher overall survival and were found to live a median of one year after a trial. Interestingly, patients who enrolled in clinical trials were more likely to have undergone primary debulking surgery (PDS, OR .42, p<0.009). A cox proportional hazard model incorporating PDS and clinical trial enrollment found both to be independently associated with improved survival estimates (HR 0.63 and HR 0.53 respectively, both $p < 0.002$). While clinical trial participants were more likely to start a new line of chemotherapy within 30 days of death ($p < 0.03$), no association with other metrics of aggressive care at the end of life including administration of chemotherapy in the last 14 days of life, ICU admissions and death in an acute care setting was observed.

Conclusions: Women with ovarian cancer who are enrolled in clinical trials appear to present with an increased overall survival. While they also have a higher rate of starting a new line of chemotherapy within 30 days of death, they do not undergo more measures of aggressive care at the end of life when compared with ovarian cancer patients who are not enrolled. Further study to understand drivers of patient selection and quality of life will be crucial to understanding how clinical trial participation interacts with outcome for women with ovarian cancer.

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Poster #25

Age-related risk of postoperative mortality after cytoreductive surgery for advanced ovarian cancer

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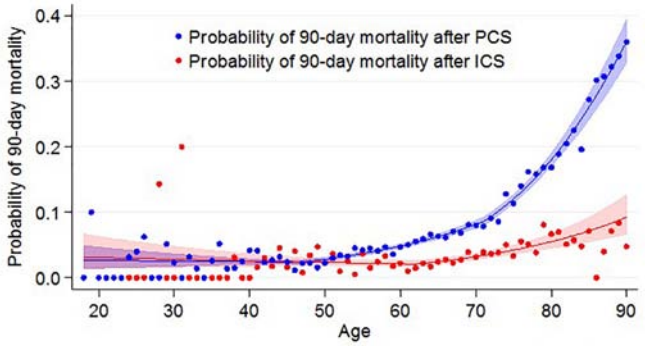
Objectives: Surgical cytoreduction is a critical component of primary therapy for advanced ovarian cancer. However, patients who die within 90 days of cytoreductive surgery do not benefit from the operation and may experience significant harm. We investigate the association between age and 90-day postoperative mortality after cytoreductive surgery, and how neoadjuvant chemotherapy (NACT) modulates this association.

Methods: Using the National Cancer Database, we conducted an analysis of age-related trends in 90-day postoperative mortality after cytoreductive surgery among women with stage IIIC or IV epithelial

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