Table S1. RECOVeR Checklist

RECOVeR Checklist		
	Item	**Recommendation**
Title		
Title	1	Enhanced recovery after surgery protocols improve time to return to intended oncology treatment (RIOT) following interval cytoreductive surgery for advanced gynecologic cancers
Introduction		
Background	2	The relationship between use of an enhanced recovery after surgery (ERAS) protocol and the timely resumption of chemotherapy after interval cytoreductive surgery is unknown.
Guidelines	3	Nelson G, Altman AD, Nick A, et al. Guidelines for pre- and intra-operative care in gynecologic/oncology surgery: Enhanced recovery after surgery (ERAS®) society recommendations--part I. Gynecol Oncol. 2016;140(2):313-322.; Nelson G, Altman AD, Nick A, et al. Guidelines for postoperative care in gynecologic/oncology surgery: Enhanced recovery after surgery (ERAS®) society recommendations--part II. Gynecol Oncol. 2016;140(2):323-332.
Outcomes	4	Primary outcome Return to intended oncology treatment (RIOT), defined as the percentage of patients initiating adjuvant chemotherapy within 28 days post-operatively. Secondary outcomes –time to resumption of chemotherapy, hospital complications and length of stay, and prognostic factors for achieving RIOT.
Methods		
IRB approval	5	Partners IRB #2017P001806
Study design	6	Retrospective cohort study
Setting	7	Single institution, tertiary urban academic hospital with stable group of surgeons and ERAS protocol during the study period
Timing	8	January 2010 through January 2015 (pre-ERAS); January 2017 - December 2018 (post-ERAS)
Participants	9	Inclusion criteria: all patients undergoing interval cytoreductive surgery via laparotomy after neoadjuvant chemotherapy for known or suspected ovarian, primary peritoneal, or fallopian tube cancer on a gynecologic oncology service

		Exclusion criteria: synchronous malignancy, final pathology revealed a non-gynecologic or nonepithelial malignancy, never underwent definitive surgical intervention, the procedure was for recurrent disease, did not receive post-operative chemotherapy, or the timing of resumption of chemotherapy and follow up data were not available
Enhanced Recovery protocol	10	Full Enhanced Recovery protocol was initiated in January 2017
	11	Enhanced Recovery protocol including the following elements:
		(a) Preadmission patient education regarding the protocol - All patients receive written information about the enhanced recovery protocol and verbal instruction in enhanced recovery during the preoperative evaluation center visit.
		(b) Preadmission screening and optimization for nutritional deficiency, frailty, tobacco cessation, and ethanol use - Patients are screened for nutritional deficiency using the NRS scoring system, frailty by ECOG performance status, and referred preoperatively for tobacco and ethanol counseling as appropriate
		(c) Fasting and carbohydrate loading guidelines - Normal diet until midnight, clear liquids until 2 hours before surgery, two 300 ml cans of Clearfast® each containing a total of 50 grams of maltodextrin finished 2 hours before surgery
		(d) Pre-emptive analgesia (dose, route, timing) - 400 mg celecoxib, 975 mg acetaminophen, 600 mg gabapentin given in preop
		(e) Anti-emetic prophylaxis (dose, route, timing) - 4 mg ondansetron and 8 mg dexamethasone given intravenously prior to emergence; scopolamine patches added for patients at high risk of nausea
		(f) Intraoperative fluid management strategy - Esophageal Doppler monitoring of stroke volume variation if EBL > 500 ml or total IV fluids > 1600 ml anticipated - No fluids should be administered in preop holding - Goal intraoperatively is net zero fluid balance - If patients are hypotensive with other indicators of hypovolemia, crystalloid boluses should be given at no more than 3-5mL/kg with appropriate time allowed for clinical response

		- Colloid may be substituted for crystalloid at the anesthesiologist's/surgeon's discretion
		(g) Types, doses, and routes of anesthetics administered - No nitrous oxide - Thoracic epidural with bupivacaine only (no opioids) or wound infiltration with liposomal bupivacaine - Total IV analgesia preferred with propofol plus one additional agent - Options for second agent include: 1. Ketamine 0.5mg/kg bolus and 5mcg/kg/min 2. Lidocaine 1mg/kg bolus and 1.5mg/kg/hr (should not be used for patients receiving regional anesthesia) 3. Dexmedetomidine 0.5mcg/kg/hr
		(h) Patient warming strategy - forced warm air and intravenous fluid warmer if fluids > 1600 ml
		(i) Management of post-operative fluids - 1 ml /kg/hour, fluids shut off at 6 hours post-op
		(j) Post-operative analgesia and anti-emetic plans - 0.25% liposomal bupivacaine wound infiltration or continuous thoracic epidural, 1000 mg acetaminophen orally every 6 hours orally, 15 mg ketorolac IV every 6 hours x 48 hours, tramadol 50 mg q6 hours prn breakthrough pain - 4 mg ondansetron every 6 hours intravenously as needed
		(k) Plan for opioid minimization - first line analgesic 50 mg tramadol every 6 hours orally as needed up to 300 mg daily, with 5 mg oral oxycodone for breakthrough pain - patients prescribed 0-20 tablets on discharge based on prior 24 hours of opioid use
		(l) Drain and line management - No routine wound drains, Foley catheter removed 6 AM post-op day zero after bladder backfill
		(m) Early mobilization strategy - Patients out of bed day 0, out of bed all meals, out of bed 6 hours per day with goal of at least four laps around unit and three meals out of bed
		(n) Post-operative diet and bowel regimen management - Regular diet beginning post-op day 0, standing docusate and senna twice daily beginning post-op day 0, gum chewing at least 30 minutes three times daily starting post-op day 0
		(o) Criteria for discharge

		- Tolerating at least 1000 ml po daily, voiding independently, pain well-controlled on oral medication, ambulating in hallways
		(p) Tracking of post-discharge outcomes - Patient outcomes tracked through electronic record through 30 days post-op by ERAS abstractor
Enhanced Recovery Auditing	12	All in-hospital Enhanced Recovery elements charted in real time by physician assistant into Enhanced Recovery Interactive Audit System (EIAS); remaining elements collected by data abstractor from electronic record
Outcomes	13	(a) Outcomes assessed by electronic medical record review of nursing and physician notes
		(b) Clinical outcomes – Clavien-Dindo complications, reoperation, death Administrative outcomes – return to intended oncologic treatment, length of stay, readmission
PROs	14	none
Results		
	15	
Patient population		(a) See Table 1
		(b) Participants with missing data indicated in Table 1 footnotes as indicated
Enhanced Recovery compliance	16	Table S2 provides Enhanced Recovery compliance per the published guidelines by phase of care
Correlations	17	Figure S1 provides a correlation matrix with respect to primary outcome and ERAS compliance
Discussion		
Context	18	Women undergoing interval cytoreductive surgery on an ERAS pathway were significantly more likely to resume chemotherapy within 28 days of surgery compared to women treated before pathway implementation. ERAS implementation was the strongest predictor of outcome in the multivariate analysis.
Limitations	19	Not a prospective study, did not have sufficient power to subdivide patients into more detailed populations
Other information		
Funding	20	Support from departmental grant

Table S2: Pre, intra and postoperative compliance with 20 ERAS metrics

Phase	Percentage compliance	Compliance Elements
Preop	81.9%	• No Oral bowel preparation done unless applicable • Preoperative oral carbohydrate treatment • Preoperative sedative medication • Thrombosis prophylaxis • Antibiotic prophylaxis before incision • PONV prophylaxis administered
Intraop	79.3%	• No long-acting systemic opioids given • Upper-body forced-air heating cover used • No NG tube used postoperatively • No resection-site drainage unless applicable
Postop	61.8%	• Time to termination of urinary drainage (nights) • Stimulation of gut motility • Duration of IV fluid infusion (nights): • Energy Intake On day of surgery, postoperatively • Energy Intake on Postoperative Day 1 • Mobilization at all on day of surgery • Mobilization on postoperative day 1 • Mobilization on postoperative day 2 • 30 day follow up performed
TOTAL	**71.6%**	