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Risk-Scoring Model for Prediction of Non-Home Discharge in Epithelial Ovarian Cancer Patients

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Abstract

Background—Identification of preoperative factors predictive of non-home discharge after surgery for epithelial ovarian cancer (EOC) may aid counseling and optimize discharge planning. We aimed to determine the association between preoperative risk factors and non-home discharge.

Study Design—Patients who underwent primary surgery for EOC at Mayo Clinic between 1/2/03 and 12/29/08 were included. Demographic, preoperative and intraoperative factors were retrospectively abstracted. Logistic regression models were fit to identify preoperative factors associated with non-home discharge. Multivariable models were developed using stepwise and backward variable selection. A risk-scoring system was developed for use in preoperative counseling.

Results—Within our cohort of 587 EOC patients, 12.8% were not discharged home (61 skilled nursing facility, 1 rehabilitation facility, 1 hospice and 12 in-hospital deaths). Median length of stay (LOS) was 7 days (interquartile range (IQR) 5, 10) for those patients dismissed home compared to 11 days (IQR 7, 17) for those with non-home dismissals ($p < 0.001$). In multivariable analyses, patients with advanced age (odds ratio (OR) 3.75 (2.57, 5.48), $p < 0.001$), worse ECOG performance status (OR 0.92 (0.43, 1.97) for ECOG performance status 1 vs. 0 and OR 5.40 (2.42, 12.03) for score of 2+ vs. 0; $p < 0.001$), greater ASA score (OR 2.03 (1.02, 4.04) for score of 3 vs. <3, $p = 0.04$), and higher CA-125 (OR 1.28 (1.12, 1.46), $p < 0.001$) were less likely to be discharged home. The unbiased estimate of the c-index was excellent at 0.88, and the model had excellent calibration.

Conclusions—Identification of preoperative factors associated with non-home discharge can assist patient counseling and postoperative disposition planning.

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Keywords

Epithelial ovarian cancer; Non-home discharge; Nomogram; Risk-scoring model

Introduction

As epithelial ovarian cancer (EOC) is the leading cause of gynecologic cancer death in the United States, this cancer represents an important public health concern (1). An estimated 22,000 new cases of EOC will be diagnosed and 15,000 deaths from disease will occur in 2012 (2). Approximately 75% of EOC patients present with widely disseminated disease at the time of diagnosis, and when coupled with increased treatment-related morbidity and mortality results in a poor prognosis and overall survival (3, 4).

The median age of EOC diagnosis is 63 years, and the peak incidence of disease is in the 7th decade of life with nearly half of the cases being diagnosed at 65 years of age and over (3, 5). Age by itself has been shown to be an independent predictor of overall survival and poor prognosis in EOC (6, 7). Elderly patients are more likely to present with advanced stage disease and have underlying comorbidities that increase surgical morbidity and impact overall survival (3, 8–10). Several studies, however, have shown that elderly patients are able to tolerate aggressive surgical approaches when performance status is controlled for, and that survival is improved with complete cytoreduction (6, 11–14).

Patient frailty, decreased physiologic reserve that compromises an elderly patients' resilience in recovery from surgery, may account for poor surgical outcomes in some elderly patients relative to others (15, 16). It has been shown that frail patients undergoing gynecologic oncology surgery have a significantly higher rate of 30-day postoperative complications regardless of age and comorbidities (17). Balancing the burden of malignancy, consequences of frailty and comorbidities in elderly patients with EOC presents a challenge for the gynecologic oncologist. From a patient and family perspective, the potential impact that surgery and adjuvant therapy may have on quality of life compound a complex counseling process (18–20).

It is estimated that 20–44% of elderly patients require discharge to an institutional care facility after major surgery, and 10% of Medicare's annual budget is allocated to payment for postoperative institutional care (21, 22). The implications of increased healthcare costs in the management of elderly and especially frail patients are vast (23). Patients with EOC aged 65–74 years have lengthier hospital stays and higher total cost of care (approximately \$90,000/case) compared to other gynecologic malignancies (approximately \$60,000/case for uterine cancer) (24). Approximately \$10,000 of these costs are devoted to post-discharge services including skilled nursing facility (SNF) care and home health care, and \$49,000 are allocated to inpatient facility care (24). Hospital stays may be extended several days after medical clearance in elderly patients while securing dismissal to a SNF (25). Addressing home support, SNF bed availability, and patient acceptance of discharge destination preoperatively may allow for more efficiently utilized dismissal planning services and reduce cost of EOC care (25).

In order to provide a comprehensive approach to patient care that takes into account patients' psychological and physical needs and wishes, discharge disposition would ideally be incorporated into preoperative counseling. Efforts have been made in orthopedic surgery, cardiac surgery, and urology to develop predictive models for non-home discharge which can be used as part of routine preoperative evaluation (25, 26). However, no data on preoperative predictors of discharge destination in EOC exist. To this end, we identified

independent risk factors for non-home discharge and propose a risk-scoring tool to identify patients at increased risk of non-home discharge.

Methods

Patients who underwent surgical staging and/or primary cytoreduction for EOC, primary peritoneal carcinoma (PPC), or fallopian tube cancer (FTC) (all collectively referred to as “EOC” for this study) at our institution between January 2, 2003 and December 29, 2008 were retrospectively identified. Patients who received neoadjuvant chemotherapy, had recurrent disease, a non-epithelial malignancy or a prior surgical diagnosis of their cancer (via laparoscopy or laparotomy) were excluded. Mayo Clinic Institutional Review Board approval was obtained prior to the study, and patients who denied access to their medical records were excluded.

A large surgical database constructed using elements of the American College of Surgeons’ National Surgical Quality Improvement Program (NSQIP) platform was utilized for data analysis. This database encompasses more than 130 elements that take into account patient characteristics and process-of-care variables that were abstracted by a dedicated registered nurse.

Cardiovascular disease was classified into 1. History of cardiac event: coronary artery disease, myocardial infarction or other cardiac event 2. Cardiovascular risk factors: hypertension, hyperlipidemia, or peripheral vascular disease (PVD) 3. Deep vein thrombosis/pulmonary embolism (DVT/PE). Of note, other cardiac events included history of arrhythmia, congestive heart failure, cardiomyopathy, and valvular heart disease. Eastern Cooperative Oncology Group (ECOG) performance status was assigned preoperatively based on information pertaining to physical function obtained from preoperative consultation notes. A score from 0–5 was hereby assigned based on the published ECOG scale (27). This method of retrospective assignment of ECOG performance status has been previously shown to be both reproducible and reliable in estimating patients’ functional status (28). Discharge status was classified as home discharge vs. non-home discharge. Non-home discharge included dismissal to a SNF, rehabilitation facility, hospice, or in-hospital death. For patients who underwent adjuvant chemotherapy, the date of initiation and type of chemotherapy was abstracted. Date of subsequent progression and dates of last relevant clinical follow-up and last follow-up by any means were recorded as well as vital status.

Statistical Analysis

The data are summarized using standard descriptive statistics, mean and standard deviation (SD) for continuous variables and frequency and percentage for categorical variables. The primary outcome of interest was non-home discharge. Univariable logistic regression models were fit to evaluate the association of preoperative variables with non-home discharge. Continuous variables were evaluated univariately as non-transformed, log-transformed, or using restricted cubic splines to identify the best fit. Associations were summarized using the odds ratio (OR) and corresponding 95% confidence interval (CI) estimated from the models. A parsimonious multivariable logistic model was obtained using stepwise and backward variable selection methods applied to the variables with a p-value of <0.20 based on univariable analysis. Variables with a p-value less 0.05 were retained in the final model. Two-way interactions of the variables were tested and retained if statistically significant. A nomogram based on the final model’s predicted probabilities for non-home discharge was created using the R version 2.14.0 software package.

The final model was assessed for discrimination and calibration. Discrimination was assessed using 300 bootstrap resamples of the same size as the original study sample. For

each bootstrap sample, a logistic regression model was fit using the variables identified in the final model and the c-index was calculated. The c-index is a measure of a model's predictive accuracy (discrimination). An unbiased estimate of the c-index was obtained based on averaging the 300 c-indices. Calibration was assessed by comparing the observed proportion with a non-home discharge versus the predicted probabilities estimated from the model, after grouping the patients into quintiles based on the predicted probabilities.

In secondary analyses, the Wilcoxon rank-sum test was used to compare the time to chemotherapy between patients with home vs. non-home discharge. Among the patients with stage IIIA disease who were alive at hospital discharge, duration of follow-up was calculated from the date of the surgery to the date of the first recurrence or date of last relevant follow-up for patients without recurrence. The Kaplan-Meier method was used to estimate the progression-free survival, which was then compared between patients with home vs. non-home discharge using the log-rank test. Statistical analyses were performed using the SAS version 9.2 software package (SAS Institute, Inc.; Cary, NC).

Results

Patient Population and Demographics

Our cohort of 587 cases had a mean ($\pm$ SD) age of 63.8 ± 11.7 years. Mean BMI was 28.1 ± 6.4 kg/m² and 78.0% had stage IIIA disease. Baseline demographics and disease-specific factors have been previously published(29). Within the cohort, 512 (87.2%) were discharged home. Of the 75 (12.8%) patients not discharged to home, 61 (81.3%) were discharged to a SNF, 1 (1.3%) to a rehabilitation facility, 1 (1.3%) to hospice. Twelve patients (16% of patients not dismissed home and 2% of entire cohort) died prior to hospital discharge.

Median length of stay (LOS) was 7 days (interquartile range (IQR) 5, 10) for those patients dismissed home compared to 11 days (IQR 7, 17) for those with non-home dismissals ($p < 0.001$). There were 107 (18.2%) readmissions within 30 days of dismissal. Of the 75 patients with non-home discharge, 12 were readmitted within 30 days (16.0%) in comparison to 95 out of 512 patients dismissed home (18.6%) ($p = 0.59$). The mortality rate prior to hospital discharge for the cohort was 2%. The mean age of the 12 patients who died before discharge was 70.8 ± 11.0 years, and most had a history of cardiovascular risk factors (66.7%). The primary cause of postoperative death in all 12 patients was cardiopulmonary failure.

Preoperative Factors Associated with Non-Home Discharge

Patients dismissed to home were younger than those with a non-home discharge (mean $\pm$ SD, 62.2 ± 11.3 vs. 74.8 ± 7.4 years; $p < 0.001$). On univariate analyses, 43% of patients with ECOG performance status 2 and 21% of patients with American Society of Anesthesiologists (ASA) score 3 were not discharged home. Patients with worse performance status (ECOG 2 and ASA score 3) were significantly more likely to have a non-home discharge (both $p < 0.001$). Furthermore, a history of diabetes or chronic obstructive pulmonary disease (COPD) were each associated with non-home discharge ($p = 0.002$ and 0.03 , respectively). In fact, approximately 1 out of 4 patients with diabetes or COPD were discharged to non-home locations. Furthermore, patients with a history of a cardiac event and cardiovascular risk factors were less likely to be discharged home ($p < 0.001$ for both). Patients with a lower preoperative hemoglobin ($p < 0.001$), higher creatinine ($p = 0.009$), and lower albumin ($p < 0.001$) were more likely to have a non-home discharge (Table 1). However, differences in mean hemoglobin, creatinine and albumin between the two groups were small and were not clinically significant (hemoglobin 0.7 g/dL, creatinine 0.1 mg/dL, and albumin 0.4 g/dL, respectively). On the other hand,

preoperative CA-125 was significantly higher (statistically and clinically) in those who were not dismissed to home (median (IQR), 849 (462, 2700) vs. 481 (135,1385) U/mL $p=0.002$).

On multivariable analysis, older age, poorer ECOG performance status, greater ASA score, and higher CA-125 remained independently associated with non-home discharge. Preoperative laboratory values (hemoglobin, creatinine and albumin) were no longer significant on multivariable analysis. Notably, after adjusting for the other factors, patients with an ECOG performance status of 2 or greater had a 5-fold higher rate of non-home discharge and patients with an ASA score of 3 or greater had a 2-fold higher rate of non-home discharge. Additionally, for each decade of life the rate of non-home discharge quadrupled the likelihood of non-home discharge (Table 2).

Disease Outcomes among Home vs. Non-Home Discharge

Within the entire cohort, 462 (78.7%) patients underwent adjuvant chemotherapy and the date of chemotherapy commencement was available for 398 cases (34 with non-home discharge; 364 with home discharge). Those who were dismissed to a SNF or rehabilitation facility had a longer median time to chemotherapy (44 (IQR 29, 54) days) compared to those who were dismissed home (31 (IQR 27, 39) days) (Wilcoxon rank-sum test, $p<0.001$).

Among the 446 patients with stage IIIA disease who were alive at hospital dismissal, 273 had a documented recurrence with a median time to recurrence of 1.1 years (IQR, 0.7, 1.6 years); the median duration of follow-up among the remaining 173 patients was 0.3 years (IQR, 0.1, 2.5 years). Within these 446 patients, median progression-free survival (PFS) was 1.3 years overall and was similar between those dismissed to home (median PFS 1.3 years) and those with non-home dismissals (median PFS 1.2 years) (log-rank test, $p=0.26$).

Risk-Scoring Model

Utilizing the independent variables identified as significantly associated with non-home discharge, a nomogram was generated to quantify patients' individual risk of non-home discharge based on preoperative variables (Figure 1). Figure 2 illustrates the histogram of the predicted probabilities from the final model. The predicted probabilities for non-home discharge based on the nomogram for five hypothetical patients with varying levels of risk are illustrated in Table 3. The performance of the final model was assessed through discrimination and calibration. Discrimination was measured using the c-index. The unbiased estimate of the c-index derived from bootstrap resamples was excellent at 0.88. Calibration was assessed graphically by examining how far the predicted probabilities are from the actual observed proportion with non-home dismissal. The model had excellent calibration as illustrated in the calibration plot in Figure 3. Figure 4 illustrates the sensitivity and specificity of the model based on varying the level of the predicted probability that is used as the cut-off.

Of note, disease-related and intraoperative factors were additionally evaluated for an association with non-home discharge. Of all intraoperative factors, only stage and omental involvement were found to be associated with non-home discharge on multivariate analysis. Neither ascites, surgical complexity, extent of residual disease, or need for intraoperative blood transfusion impacted discharge destination. The addition of stage and omental involvement did not improve the unbiased estimate of the model's predictive ability. The c-index was 0.88 for the model with four factors and it was 0.90 for the model based on six factors.

Discussion

The diagnosis of EOC carries great physical, psychological, and social implications for patients and their families. Age has traditionally been considered an important factor in counseling newly diagnosed women on their options for surgical debulking and chemotherapy especially when other comorbidities and suboptimal performance status are taken into account (30–33). However, as complete cytoreduction remains an important predictor of improved overall survival regardless of age (6, 34, 35), patient frailty is emerging as a more accurate measure of surgical tolerance and postoperative outcomes.

It has been previously shown that the use of baseline frailty characteristics (e.g. burden of comorbidity, functional status, nutrition, cognitive/mental status) is predictive of length of hospital stay and decreased chance of home discharge (15, 21). Validated tools for measuring patient frailty are widely available including the frailty index, the Edmonton Frail Scale, and single frailty measures (e.g. grip strength and gait speed)(16). However, we utilized surrogates of patient frailty available to us including comorbidities, preoperative hemoglobin and albumin, ASA score and ECOG performance status to assess factors individually associated with non-home discharge. We established, based on multivariable analysis, that age, severity comorbidities (based on ASA score), ECOG performance status and preoperative CA-125 are predictive of non-home discharge. Similar to previous findings in urologic and orthopedic surgery (25, 36), women undergoing primary EOC staging and debulking were less likely to be dismissed to their home the older they were and the poorer their preoperative performance status was. Older age also appears to be associated with longer hospital stays. Our findings suggest that patients who are more likely to be discharged to a SNF could be identified preoperatively as essentially all of the independent risk factors for non-home dismissal can be identified in the preoperative setting. Interestingly, the inclusion of intraoperative factors did not add value to our risk-prediction model.

Median progression-free survival among those with stage III/IV disease was no different regardless of dismissal to home vs. dismissal to a SNF or rehabilitation facility, suggesting that the significant difference in time to chemotherapy between the two cohorts did not impact disease outcomes. Thus, the value in preoperatively identifying patients who are at higher risk for non-home discharge may guide counseling and aid in addressing patients' and family's expectations and wishes. Moreover, adequate patient counseling and early discharge planning for women with EOC could contribute to lower healthcare costs, decrease length of hospital stays, and prepare patients for potential postoperative sequelae. Among patients undergoing joint arthroplasty and liver transplantation, predicting postoperative care through the use of a predictive perioperative tool appears to increase the rate of home discharge and patient satisfaction, and decrease the length of hospital stay (37, 38). As these tools have been newly established in their respective surgical domains, their impact on improving health-related costs and quality of life is yet to be determined (26, 37, 38).

Nomograms have been widely used in many areas of oncology to maximize the prediction of treatment outcomes and individualize treatment (39, 40). In ovarian cancer, nomograms were developed by Chi et al to predict 5-year disease mortality with promising results for patient counseling and postoperative management (41, 42). We propose that a nomogram such as ours may add quality of life data that may assist providers in addressing patients' expectations regarding the social consequences that primary surgery may bear. Our concordance index was calculated to be 0.88, which is comparable to nomograms previously developed in other surgical areas. We predict that through the implementation of an online calculator based on our risk-prediction nomogram, social workers may be able to determine a patient's likelihood of postoperative discharge to a SNF allowing for arrangements to even

be made prior to surgery. The incorporation of patient frailty characteristics, such as measures of cognitive function, a history of falls and social vulnerability (lack of close family network), in prospective preoperative evaluations may further strengthen the utility of our nomogram.

Limitations to our study include the lack of information on socioeconomic factors, and home environment variables. For instance, having patients meet with a social worker prior to surgery to assess their needs through a questionnaire and incorporating this information into our model would certainly add value. Duration of stay at a SNF or rehabilitation facility was also not assessable through this study. Additionally, patients who underwent neoadjuvant chemotherapy followed by interval debulking surgery were not included. At our institution, neoadjuvant chemotherapy has traditionally been reserved for patients with imaging evidence of extensive disease that is not amenable to optimal cytoreduction and patients who are medically unfit for aggressive surgery. As such, those who ultimately undergo interval cytoreduction may have different postoperative sequelae and rates of non-home discharge. This warrants further exploration.

In conclusion, the patient that can predict post-hospital disposition can be identified during the preoperative evaluation of a woman with newly diagnosed EOC. Utilizing these factors in a clinical nomogram may assist in postoperative planning as well as preoperative counseling thereby allowing for a more informed decision-making process. The impact of more efficient dismissal planning on patient quality of life and healthcare costs requires further investigation. In an era of increasing healthcare costs, aging of the population and individualized patient care, informed decision-making implementation of systems to improve postoperative hospital delivery of care are critical.

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Figure 1.

Nomogram for predicting non-home discharge after primary surgery for epithelial ovarian cancer. Points are assigned for each of the four predictors by drawing a line up from the scale for each predictor to the points bar at the top of the figure. The points for all predictors are then added to determine the total points. A patient's predicted probability of non-home discharge is obtained by drawing a line from the total points bar to the predicted probability bar. ASA, American Society of Anesthesiologists; ECOG, Eastern Cooperative Oncology.

Figure 2. Histogram of predicted probabilities of non-home discharge after primary surgery for epithelial ovarian cancer as estimated by the logistic regression model. 64% of the patients have a predicted probability less than 0.10 and 6% have a predicted probability greater than 0.50.

Figure 3.

Calibration plot for the non-home discharge risk prediction model. The dashed line indicates the ideal reference line where the predicted probabilities estimated from the model would match the observed proportion of patients with a non-home dismissal. Patients were groups into quintiles based on their predicted probabilities. The solid circles indicate the mean predicted probability for the quintile and the observed proportion of patients in that quintile with a non-home dismissal along with 95% confidence intervals.

Figure 4.

Sensitivity and specificity of the model based on predicted probabilities. This figure illustrates the sensitivity and specificity of the model based on varying the level of the predicted probability that is used as the cut-off. If a cut-off of 0.10 is used to determine non-home discharge, then the sensitivity of this rule is 86% and the specificity is 71%.

Table 1**Patient Demographic Characteristics and Preoperative Variables**

Characteristic	Home discharge	Non-home discharge	Univariate OR (95% CI)	p Value
	n=512	n=75		
Age, y, mean (SD)	62.2 (11.3)	74.8 (7.4)	3.46 (2.54, 4.71) *	<0.001
BMI, kg/m ² , n (%)				0.43
Underweight/normal (<24.9)	186 (36.5)	27 (36.0)	Reference	
Overweight (25.0–29.9)	163 (32.0)	18 (24.0)	0.76 (0.40, 1.43)	
WHO class I (30.0–34.9)	89 (17.4)	17 (22.7)	1.32 (0.68, 2.54)	
WHO class II or III (35.0+)	72 (14.1)	13 (17.3)	1.24 (0.61, 2.54)	
ECOG performance status, n (%)				<0.001
0	396 (77.5)	37 (49.3)	Reference	
1	86 (16.8)	16 (21.3)	1.99 (1.06, 3.74)	
2+	29 (5.7)	22 (29.3)	8.12 (4.25, 15.53)	
ASA score, n (%)				<0.001
<3	296 (57.8)	16 (21.3)	Reference	
3	216 (42.2)	59 (78.7)	5.05 (2.83, 9.02)	
Medical comorbidities, n (%)				
Cardiac event [†]	37 (7.2)	15 (20.0)	3.21 (1.66, 6.19)	<0.001
Cardiovascular risk factors [‡]	284 (55.5)	60 (80.0)	3.21 (1.78, 5.80)	<0.001
DVT/PE	35 (6.8)	10 (13.3)	2.10 (0.99, 4.44)	0.05
Diabetes	43 (8.4)	15 (20.0)	2.73 (1.43, 5.20)	0.002
COPD	19 (3.7)	7 (9.3)	2.67 (1.08, 6.59)	0.03
Other pulmonary disease [§]	57 (11.1)	9 (12.0)	1.09 (0.52, 2.30)	0.82
Smoking history, n (%)				0.97
No	315 (61.5)	46 (61.3)	Reference	
Yes (past or current)	197 (38.5)	29 (38.7)	1.01 (0.61, 1.66)	
Hemoglobin, g/dL, mean (SD)	12.9 (1.4)	12.2 (1.5)	0.75 (0.63, 0.88)	<0.001
Creatinine, mg/dL, mean (SD)	0.9 (0.2)	1.0 (0.3)	3.17 (1.33, 7.54)	0.009
Albumin, g/dL, mean (SD)	3.9 (0.5)	3.5 (0.6)	0.27 (0.16, 0.46)	<0.001
Thrombocytosis, n (%) ^{//}	108 (21.5)	21 (28.0)	1.42 (0.82, 2.46)	0.21
CA-125, U/mL, median (IQR)	849 (462, 2700)	481 (135, 1385)	1.18 (1.06, 1.30) *	0.002

Percentages based on non-missing values.

ASA, American Society of Anesthesiologists; BMI, body mass index, CI, confidence interval; COPD, chronic obstructive pulmonary disease; DVT/PE, deep vein thrombosis/pulmonary embolism; ECOG, Eastern Cooperative Oncology Group; OR, odds ratio; PVD, peripheral vascular disease; SD, standard deviation; WHO, World Health Organization; IQR, interquartile range.

* Odds ratio for age per 10-y increment and per doubling for CA-125.

[†] Cardiac event represents patients with a history of coronary artery disease, myocardial infarction or other cardiac event.

[‡] Cardiovascular risk factors represent patients with a history of hypertension, hyperlipidemia or peripheral vascular disease.

[§]Other pulmonary disease represents patients with asthma, sleep apnea, or other pulmonary diagnoses.

^{//}Thrombocytosis defined as preoperative platelet count $>450 \times 10^9/L$.

Table 2

Multivariate Analysis of Preoperative Factors Associated with Non-Home Discharge

Characteristic	OR (95% CI)	p Value
Age (per 10-y increment)	3.75 (2.57, 5.48)	<0.001
ECOG performance status		<0.001
0	Reference	
1	0.92 (0.43, 1.97)	
2+	5.40 (2.42, 12.03)	
ASA score		0.04
<3	Reference	
3	2.03 (1.02, 4.04)	
CA-125 (per doubling)	1.28 (1.12, 1.46)	<0.001

ASA, American Society of Anesthesiologists; CI, confidence interval; ECOG, Eastern Cooperative Oncology Group; OR, odds ratio.

Table 3

Predicted Probability of Non-Home Discharge as Computed by the Nomogram for 5 Hypothetical Cases

Characteristic	Hypothetical case				
	1	2	3	4	5
Age at surgery, y	60.5	71.4	71.4	74.5	70.5
ECOG performance status	0	0	1	1	2+
ASA score	1 or 2	1 or 2	1 or 2	3 or 4	3 or 4
Preoperative CA-125	340	264	1710	727	389
Predicted probability of non-home discharge	0.01	0.08	0.14	0.26	0.50

ASA, American Society of Anesthesiologists; ECOG, Eastern Cooperative Oncology.