Appendix 1. Histologic Types of Epithelial Ovarian Cancer

Histologic Type	ICD-O-3 code
Serous carcinoma	8441, 8460-8463
Mucinous carcinoma	8470-8471, 8480,8481
Endometrioid carcinoma	8380-8381
Clear-cell carcinoma	8310, 8313
Other adenocarcinoma	8050, 8140, 8144, 8255, 8260, 8263, 8290, 8320, 8323, 8340, 8440, 8450, 8490, 8560, 8574, 8940

ICD-O-3: *International Classification of Disease for Oncology, Third Edition*

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Appendix 2. Logistic Regression Model to Predict Propensity for Fertility-Sparing Surgery

Variable	Adjusted OR*	95% CI
Age category		
Less than 20	Referent	
20-24	0.82	0.25-2.70
25-29	0.37	0.12-1.14
30-34	0.18	0.06-0.55
35-39	0.06	0.02-0.17
Year of diagnosis		
2004	Referent	
2005	0.93	0.57-1.54
2006	1.01	0.61-1.67
2007	1.19	0.74-1.91
2008	1.11	0.69-1.79
2009	1.37	0.84-2.24
2010	1.28	0.79-2.06
2011	1.66	1.02-2.72
2012	1.33	0.83-2.12
Race/ethnicity		
Asian	Referent	
Black	0.54	0.29-1.01
Hispanic	0.72	0.42-1.24
White	0.53	0.35-0.82
Other or unknown	0.82	0.35-1.90
Region		
Midwest	Referent	
Northeast	1.47	1.05-2.08
South	0.90	0.67-1.21
West	1.38	0.97-1.97
Insurance status		
Private	Referent	
Medicaid	0.73	0.50-1.05
Uninsured	0.97	0.67-1.41
Medicare	0.37	0.17-0.79
Unknown	1.00	0.41-2.43
Income		
< $38,000	Referent	
$38,000 - $47,999	0.99	0.67-1.47
$48,000 - $62,999	0.98	0.65-1.48
≥ $63,000	0.91	0.57-1.44
Unknown	0.26	0.06-1.17
Education level		
1st Quartile	Referent	
2nd Quartile	1.22	0.83-1.79
3rd Quartile	1.14	0.76-1.72
4th Quartile	1.58	0.98-2.54
Urban status		
Metropolitan	Referent	
Adjacent	0.49	0.32-0.76
Non-metropolitan	0.30	0.15-0.60
Unknown	1.38	0.70-2.69
Facility type		
Academic	Referent	
Community	0.94	0.73-1.20
Integrated network	1.07	0.74-1.55
Unknown	1.37	0.72-2.60
Stage		
IA	Referent	
IC	0.90	0.70-1.15
Histologic type		
Clear cell		
Endometrioid	1.01	0.63-1.61
Mucinous	1.15	0.72-1.85
Other adenocarcinoma	0.87	0.52-1.44
Serous	0.89	0.53-1.50
Grade		
1	Referent	
2	1.09	0.82-1.45
3	1.25	0.86-1.81
Unknown	1.29	0.93-1.78
Tumor size, cm		
< 1.0	Referent	
1.0-4.9	1.07	0.58-1.99
5.0-9.9	0.94	0.50-1.77
10.19.9	1.08	0.60-1.96
>20	0.85	0.45-1.58
Unknown	0.92	0.51-1.68
Lymphadenectomy		
Not performed	Referent	
Performed	0.30	0.23-0.39
Unknown	0.46	0.09-2.38
Chemotherapy		
Not administered	Referent	
Administered	0.64	0.49-0.84
Unknown	0.82	0.46-1.45

OR: Odds Ratio; CI: Confidence interval

*Odds ratios are mutually adjusted for all tabulated variables

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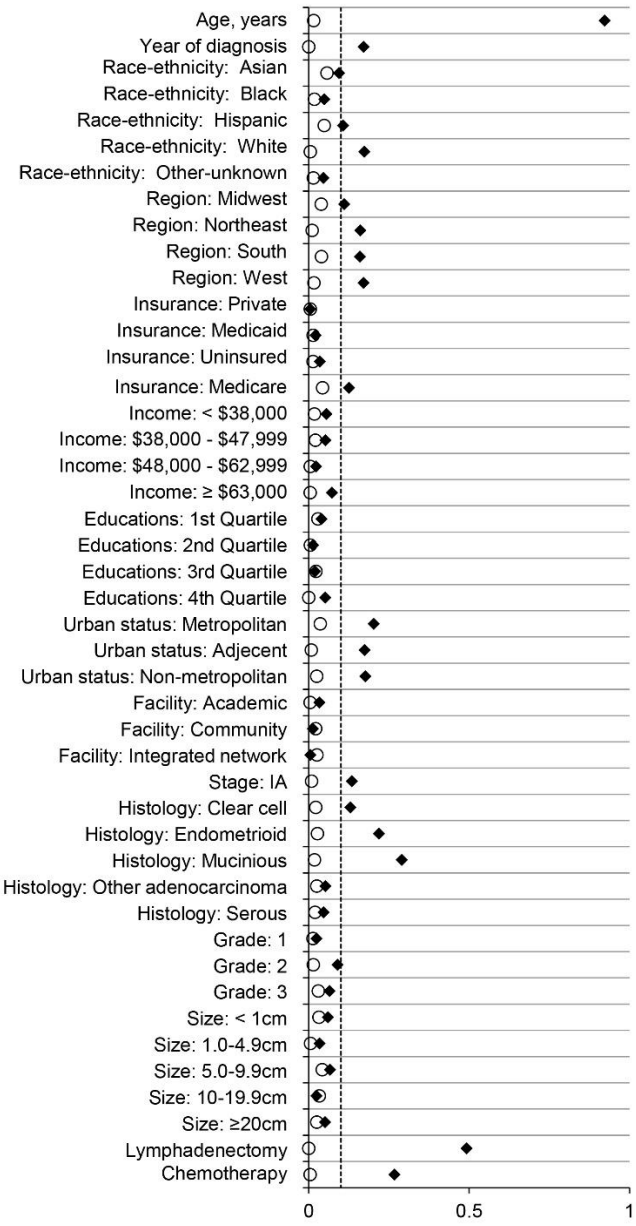
Appendix 3: Absolute standardized difference in covariates included in propensity score before (*solid diamonds*) and after (*hollow circles*) propensity score matching. Points to the left of the dashed line (10%) signify that groups are well balanced with respect to the specific covariate.



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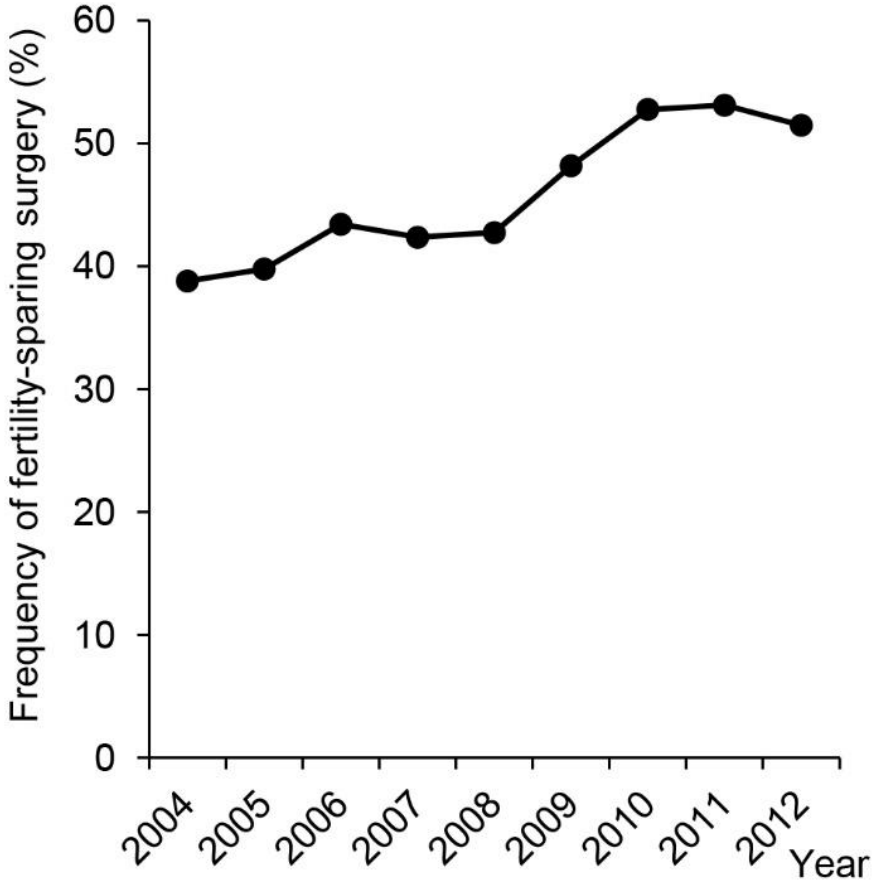
Appendix 4. Trends in utilization of fertility-sparing surgery for young women (<40 years of age) with stage I epithelial ovarian cancer diagnosed 2004–2012. The proportion of patients undergoing fertility-sparing surgery increased by an average of 4.4% annually (95% confidence interval 3.0–5.8, *P*<.001).



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Appendix 5. Characteristics of Women With High-Risk Stage IA and Unilateral IC Epithelial Ovarian Cancer Who Underwent Fertility-Sparing and Conventional Surgery After Propensity Score Matching*

Characteristic	Fertility-sparing (n=211)	Conventional (n=201)	P†
Age, median (IQR)	34 (31–37)	36 (31–37)	0.59
Year of diagnosis			
2004	64 (7.8)	95 (10.5)	
2005	67 (8.1)	99 (11.0)	
2006	77 (9.3)	98 (10.9)	
2007	93 (11.3)	116 (12.9)	1.0
2008	93 (11.3)	115 (12.8)	
2009	92 (11.2)	93 (10.3)	
2010	115 (13.9)	95 (10.5)	
2011	102 (12.4)	85 (9.4)	
2012	122 (14.8)	105 (11.7)	
Race/ethnicity			
Asian	75 (9.1)	60 (6.7)	
Black	56 (6.8)	49 (5.4)	0.97
Hispanic	97 (11.8)	81 (9.0)	
White	578 (70.1)	694 (77.0)	
Other & unknown	19 (2.3)	17 (1.9)	
Region			
Midwest	190 (23.0)	251 (27.9)	
Northeast	195 (23.6)	154 (17.1)	0.68
South	255 (30.9)	345 (38.3)	
West	179 (21.7)	140 (15.5)	
Unknown	6 (0.7)	11 (1.2)	
Insurance status			
Private	603 (74.6)	661 (74.4)	
Medicaid	99 (12.3)	102 (11.5)	0.88
Uninsured	92 (11.4)	91 (10.2)	
Medicare	14 (1.7)	34 (3.8)	
Unknown	17 (2.1)	13 (1.4)	
Income			
< $38k	115 (13.9)	143 (15.9)	
$38k - $47.9k	161 (19.5)	197 (21.9)	0.73
$48k $62.9k	232 (28.1)	244 (27.1)	
≥ $63k	313 (37.9)	308 (34.2)	
Unknown	4 (0.5)	9 (1.0)	
Education level			
1st Quartile	130 (15.8)	156 (17.3)	
2nd Quartile	202 (24.5)	213 (23.6)	0.72
3rd Quartile	261 (31.6)	301 (33.4)	
4th Quartile	228 (27.6)	222 (24.6)	
Unknown	4 (0.5)	9 (1.0)	

Characteristic	Fertility-sparing (n=211)	Conventional (n=201)	p
Urban status			
Metropolitan	729 (88.4)	731 (81.1)	
Adjacent	48 (5.8)	94 (10.4)	0.65
Non-metropolitan	17 (2.1)	49 (5.4)	
Unknown	31 (3.8)	27 (3.0)	
Facility type			
Academic	360 (43.6)	410 (45.5)	
Community	339 (41.1)	366 (40.6)	1.0
Integrated network	93 (11.3)	104 (11.5)	
Unknown	33 (4.0)	21 (2.3)	
Stage			
IA	546 (66.2)	573 (63.6)	0.83
IC	279 (33.8)	328 (36.4)	
Histologic type			
Clear cell	53 (6.4)	99 (11.0)	
Endometrioid	207 (25.1)	316 (35.1)	0.94
Mucinous	362 (43.9)	284 (31.5)	
Other adenoc	98 (11.9)	115 (12.8)	
Serous	105 (12.7)	87 (9.7)	
Grade			
1	298 (36.1)	340 (37.7)	
2	201 (24.4)	251 (27.9)	0.85
3	111 (13.5)	143 (15.9)	
Unknown	215 (26.1)	167 (18.5)	
Tumor size (cm)			
< 1.0	40 (4.8)	33 (3.7)	
1.0–4.9	146 (17.7)	146 (16.2)	
5.0–9.9	106 (12.8)	139 (15.4)	0.92
10–19.9	218 (26.4)	249 (27.6)	
≥20	129 (15.6)	127 (14.1)	
Unknown	186 (22.5)	207 (23.0)	
Lymphadenectomy			
Yes	510 (61.8)	754 (83.7)	1.0
No	312 (37.8)	143 (15.9)	
Unknown	3 (0.4)	4 (0.4)	
Chemotherapy			
Yes	288 (34.9)	425 (47.2)	0.76
No	504 (61.1)	439 (48.7)	
Unknown	33 (4.0)	37 (4.1)	

All cells are n (%) unless otherwise noted.

*Each patient undergoing fertility-sparing surgery was matched, using a 1:1 nearest neighbor algorithm, to the patient who was most similar on observed covariates but underwent conventional surgery. The propensity score model was based on all tabulated characteristics.

†P-values are all for Pearson's χ^2 except for age compared using the Wilcoxon rank-sum test.

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Appendix 6. Sensitivity Analysis for Confounding by Elevated CA-125

Prevalence of elevated CA-125 among women undergoing fertility-sparing surgery	Prevalence of elevated CA-125 among women undergoing conventional surgery			
	50%	60%	70%	80%
0%	1.06* (0.65-1.71)	1.11 (0.68-1.79)	1.16 (0.71-1.88)	1.22 (0.74-1.96)
10%	1.00 (0.61-1.60)	1.04 (0.64-1.68)	1.09 (0.67-1.76)	1.14 (0.70-1.84)
20%	0.94 (0.57-1.51)	0.98 (0.60-1.59)	1.03 (0.63-1.66)	1.08 (0.66-1.74)
30%	0.89 (0.54-1.43)	0.93 (0.57-1.50)	0.97 (0.60-1.57)	1.02 (0.62-1.64)
40%	0.84 (0.52-1.36)	0.88 (0.54-1.42)	0.92 (0.57-1.49)	0.97 (0.59-1.56)
50%	0.80 (0.49-1.29)	0.84 (0.51-1.35)	0.88 (0.54-1.42)	0.92 (0.56-1.48)
60%		0.80 (0.49-1.29)	0.84 (0.51-1.35)	0.87 (0.54-1.41)
70%			0.80 (0.49-1.29)	0.84 (0.51-1.35)
80%				0.80 (0.49-1.29)

*Cells are hazard ratio (95% confidence intervals) for the relative hazard of death associated with fertility-sparing surgery after adjustment for elevated CA-125 under a range of assumptions about the prevalence of this potential confounder. Hazard ratios < 1 favor fertility sparing surgery. Elevated CA-125 is associated with increased mortality hazard in stage I ovarian cancer (hazard ratio 1.65, relative to normal CA-125). Scenarios in which surgeons were less likely to perform fertility-sparing in ovarian cancer patients with CA-125 elevation are considered.

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