

ONLINE-ONLY APPENDICES

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Appendix 9. (a) Women (aged 30-70 years) undergoing bilateral salpingo-oophorectomy (BSO) at some point after non-malignant hysterectomy, and (b) sensitivity analyses modelling BSO as a time-varying covariate in a traditional multivariable Cox proportional hazards model; ovarian conservation serves as the referent category.

Appendix 10. Association between bilateral salpingo-oophorectomy and (a) death due to cardiovascular disease, and (b) death due to upper gastrointestinal tract cancer in women (aged 30-70 years) undergoing non-malignant hysterectomy.

Appendix 1. Codes for hysterectomy and salpingo-oophorectomy. Patients required a procedure code for hysterectomy in the Discharge Abstract Database or Same Day Surgery database, and a surgeon billing claim for hysterectomy in the Ontario Health Insurance Plan database, within 6 weeks of each other to be eligible for inclusion.

Procedure	Technique	DAD/SDS Codes		OHIP Codes
		Years 1996-2001	Years 2002+	
Total hysterectomy	Open	1.RM.89.LA	80.3	S710, S757, S758, S759, S763, S769, S810, S816
	Laparoscopic	1.RM.89.DA, 1.RM.89.AA	N/A	
	Robotic	1.RM.89.^ + 7.SF.14.ZX	N/A	
Subtotal hysterectomy	Open	1.RM.87.LA	80.2	
	Laparoscopic	1.RM.87.DA, 1.RM.87.BA, 1.RM.87.CA	N/A	
	Robotic	1.RM.87.^ + 7.SF.14.ZX	N/A	
Radical hysterectomy	Open	1.RM.91.LA	80.5	
	Laparoscopic	1.RM.91.DA, 1.RM.91.AA	NA	
	Robotic	1.RM.91.^ + 7.SF.14.ZX	NA	
Salpingo-oophorectomy	Unilateral	1.RB.89.^, 1.RD.89.^ [location attribute (L)eft/(R)ight]	77.2, 77.3	N/A
	Bilateral	1.RB.89.^, 1.RD.89.^ [location attribute (B)ilateral]	77.41, 77.42, 77.51, 77.52	

Abbreviations: CCI (Canadian Classification of Intervention); DAD (Discharge Abstract Database); OHIP (Ontario Health Insurance Plan); SDS (Same Day Surgery database)

Appendix 2. Inclusion & exclusion criteria, with relevant codes.

Criteria	Source	Codes
Inclusion Criteria		
1. Female patient	RPDB	SEX=F
2. Age 30-70 years at index date	RPDB	Based on variables BDATE and BYEAR
3. Record of abdominal hysterectomy in DAD/SDS and OHIP (+/-6 weeks) from January 1, 1996 to December 31, 2015, and performed on an elective basis	DAD SDS	Hysterectomy codes: Supplemental Table 1 Admission category variable: ADMCAT=L
Exclusion Criteria		
1. Non-Ontario residents ineligible for universal health insurance coverage	RPDB	- IKN=Invalid - First two digits of PRCDABLK not 35 - Death or loss of OHIP prior to index date
2. Suspected emergent hysterectomy	OHIP DAD SDS	- Surgery between midnight and 7AM: E410 - Peripartum indication for hysterectomy (PATSERV=51, 53, or 59) ¹
3. Malignant indication for hysterectomy or a prior breast cancer diagnosis	OCR DAD SDS	- Gynecologic cancer diagnosed any time prior or up to six weeks after index date (ICD-9: 179-184; ICD-10: C510-C58, C481, C48.2) - Main indication for index surgical admission was either a cancer diagnosis or a gynecologic neoplasm of uncertain or unknown behaviour: ICD-9: 140-208, 2360, 2362, 2361, 2363; ICD-10: C00-C97, D390, D391, D392, D397, D399 - Documentation of prophylactic surgery for malignancy before or on index date (mastectomy, hysterectomy, salpingo-oophorectomy): ICD-9: V50.4, ICD-10 Z40 - Breast cancer diagnosis prior to index date: ICD-9: 174; ICD-10: C50
4. Bilateral salpingo-oophorectomy prior to index date	DAD SDS	Salpingo-oophorectomy codes: Supplemental Table 1

Abbreviations: DAD (Discharge Abstract Database); OHIP (Ontario Health Insurance Plan); SDS (Same Day Surgery database); RPDB (Registered Persons Database)

1) Codes derived from: Canadian Institute for Health Information (CIHI). Technical Note: Hysterectomy Readmission. Accessed at: <https://www.cihi.ca/en/technical-note-hysterectomy-readmission-0#P14_938>

Appendix 3. International Classification of Diseases (ICD)-9 and -10 codes for major gynecologic diagnoses documented on the inpatient or outpatient admission for hysterectomy. Patients could have multiple diagnoses if relevant.

Indication	Definition	ICD-10 Codes	ICD-9 Codes
Premalignant Conditions			
	Endometrial hyperplasia	N850, N851	6213
	Cervical dysplasia	N870, N871, N872, N879	6221
	Vaginal dysplasia	N890, N891, N892, N893	6230
	Vulvar dysplasia	N900, N901, N902, N903	N/A
	CIS cervix	D060, D061, D067, D069	2331
	CIS vagina	D072	N/A
	CIS vulva	D071	N/A
	CIS endometrium/uterus	D070	2332
	CIS unspecified female genital organs	D073	2333
Benign Ovarian Cysts			
	Benign neoplasm ovary	D27	220, 2200
	Follicular ovarian cyst	N830	6200
	Corpus luteum cyst	N831	6201
	Other & unspecified ovarian cysts	N832	6202
	Neoplasm of uncertain or unknown behaviour of ovary	D391	2362
Abnormal Uterine Bleeding¹			
	Heavy menstrual bleeding		
	Excessive/frequent, regular cycle	N920	6262
	Excessive/frequent, irregular cycle	N921	6262
	Excessive in premenopause	N924	6270
	Irregular, other	N925	6264, 6266
	Irregular, unspecified	N926	6264, 6266
	Abnormal, other	N938	6268
	Abnormal, unspecified	N939	6269
	Excessive menstruation at puberty	N922	6263
	Ovulation bleeding	N923	6265
	Postcoital and contact bleeding	N930	6267
	Postmenopausal bleeding	N950	6271
Fibroids²			
	Fibroids	D25	218
	Submucous leiomyoma	D250	2180
	Intramural leiomyoma	D251	2181
	Subserosal leiomyoma	D252	2182
	Leiomyoma of uterus, unspecified	D259	2189
Endometriosis			
	Uterus	N800	6170

	Ovary	N801	6171
	Fallopian tube	N802	6172
	Pelvic peritoneum	N803	6173
	Rectovaginal septum/vagina	N804	6174
	Intestine	N805	6175
	Cutaneous scar	N806	6176
	Other, unspecified	N808, N809	6178, 6179
Prolapse²			
	Female urethrocele	N810	N/A
	Cystocele	N811	N/A
	Incomplete uterovaginal prolapse	N812	6182
	Complete uterovaginal prolapse	N813	6183
	Uterovaginal prolapse, unspecified	N814	6184
	Vaginal enterocele	N815	6186
	Rectocele	N816	N/A
	Other female genital prolapse	N818	6188
	Female genital prolapse, unspecified	N819	6189
	Prolapse of vaginal wall	N/A	6180
	Uterine prolapse	N/A	6181
	Postoperative vaginal prolapse	N/A	6185
	Old laceration of pelvic muscle	N/A	6187
Pelvic Pain & Inflammation			
Inflammation	Salpingitis and oophoritis	N700, N701, N709	6140, 6141, 6142
	Inflammatory disease of uterus	N710, N711, N719	6143, 6144, 6150, 6151, 6159
	Inflammatory disease of cervix	N72	6160
	Parametritis, pelvic cellulitis, pelvic peritonitis, pelvic peritoneal adhesions, other/unspecified female pelvic inflammatory disease	N730, N731, N732, N733, N734, N735, N736, N738, N739	6145, 6146, 6147, 6148, 6149
	Pelvic inflammatory disease (tuberculous, syphilitic, gonococcal, chlamydial, other, unspecified)	N740, N741, N742, N743, N744, N748	614, 615
	Bartholin's cyst/abscess/disease	N750, N751, N758, N759	6162, 6163
	Vaginitis/vulvitis/ulceration	N760, N761, N762, N763, N764, N765, N766, N768, N7680, N7688	6161, 61610, 61611, 6164, 6165, 61650, 61651
	Vulvovaginal ulceration and inflammation NEC	N770, N771, N778	6168, 6169
Abdominal & pelvic pain	Acute abdomen, RUQ/LUQ, RLQ/LLQ, pelvic/perineal pain, other/unspecified abdominal pain	R100, R1010, R1011, R1012, R1019, R102, R1030, R1032, R1039, R104	7890
	Acute, chronic, or other pain	R520, R521, R522, R529	N/A
Menstrual pain	Mittelschmerz	N940	6252

	Dyspareunia	N941	6250
	Vaginismus	N942	6251
	Premenstrual tension syndrome	N943	6254, 6255
	Primary dysmenorrhea	N944	6253
	Secondary dysmenorrhea	N945	6253
	Dysmenorrhea, unspecified	N946	6253
	Other specified conditions associated with female genital organs and menstrual cycle	N948	N/A
	Unspecified condition associated with female genital organs and menstrual cycle	N949	N/A

1) Codes for heavy menstrual bleeding have been previously used by Bansi-Matharu et al. (Citation: Bansi-Matharu L, Gurol-Urganci I, Mahmood TA, Templeton A, van der Meulen JH, Cromwell DA. Rates of subsequent surgery following endometrial ablation among English women with menorrhagia: population-based cohort study. *BJOG*. 2013;120(12):1500-1507.)

2) Codes for fibroids and prolapse have been previously used by Reeves et al. (Citation: Reeves GK, Balkwill A, Cairns BJ, Green J, Beral V, Million Women Study C. Hospital admissions in relation to body mass index in UK women: a prospective cohort study. *BMC Med*. 2014;12:45.)

Appendix 4. Codes and algorithms used to ascertain specific comorbidities and outcomes.

Comorbidity	Source	Relevant Codes	Algorithm & Citation
Previous malignancy	- Ontario Cancer Registry	ICD-10: C00-C97 ICD-9: 140-208	Not applicable
Hypertension	- Ontario Hypertension Database - DAD - SDS - OHIP	ICD-9: 401, 402, 403, 404, 405 ICD-10: I10, I11, I12, I13, I15 OHIP: 401, 402, 403, 404, 405	Tu et al. Prevalence and incidence of hypertension from 1995 to 2005: a population-based study. CMAJ. 2008; 178(11): 1429-1435. SN: 72% SP: 95%
Diabetes	- Ontario Diabetes Database - DAD - SDS - OHIP - ODB	ICD-9: 250 ICD-10: E10, E11, E13, E14 OHIP: 250, K030, K045, K046, Q040 SUBCLNAM = Insulins; oral anti-glycemics	Lipscombe et al. Identifying diabetes cases from administrative data: a population-based validation study. BMC Health Serv Res. 2018;18(1):316. SN: 90.0% SP: 97.7%
Chronic obstructive pulmonary disease	- COPD Database - OHIP - DAD - SDS	OHIP: 491, 492, 496 ICD-10: J41, J43, J44	Gershon et al. Identifying individuals with physician diagnosed COPD in health administrative databases. COPD. 2009;6(5):388-394. SN: 85.0% SP: 78.4%
Previous cardiovascular disease	- DAD - SDS - NACRS - OHIP	Ischemic heart disease ICD-10: I20-I25 ICD-9: 410-414 OHIP: 410, 412, 413 Stroke/transient ischemic attack ICD-10: I60, I61, I63 (except I63.6), I64, H34.1, G45 (except G45.4), H34.0 ICD9: 362.3, 430, 431, 434 , 436, 435 OHIP: 436, 432, 435	Tu et al. The Cardiovascular Health in Ambulatory Care Research Team (CANHEART): Using Big Data to Measure and Improve Cardiovascular Health and Healthcare Services. Circ Cardiovasc Qual Outcomes. 2015;8:204-212.

		<p>Heart failure ICD-10: I500, I501, I509 ICD-9: 428 OHIP: 428</p> <p>Coronary revascularization CCI: 1IJ50, 1IJ54, 1IJ57GQ, 1IJ76 CCP: 4802, 4803, 481 OHIP: Z434, G298, R742, R743</p> <p>Cardiac catheterization CCI: 3IP10 CCP: 4892, 4893, 4894, 4895, 4896, 4897, 4898, 4995, 4996, 4997 OHIP: Z442 or G297</p>	
Death due to cardiovascular disease	- OCR - ORGD	<p>Ischemic heart diseases ICD-10: I20-25 ICD-9: 410-414</p> <p>Cerebrovascular diseases ICD-10: I60-69 ICD-9: 430-438</p>	Tu et al. The Cardiovascular Health in Ambulatory Care Research Team (CANHEART): Using Big Data to Measure and Improve Cardiovascular Health and Healthcare Services. <i>Circ Cardiovasc Qual Outcomes</i> . 2015;8:204-212.
Death due to upper gastrointestinal tract cancer	- OCR - ORGD	<p>Esophageal & gastric cancer: ICD-10: C15, C16 ICD-9: 150, 151</p> <p>Small bowel cancer: ICD-10: C170 ICD-9: 152</p> <p>Liver & biliary cancer: ICD-10: C22, C23, C24 ICD-9: 155, 156</p>	Public Health Surveillance and Environmental Health Branch Public Health Division, Alberta Health & Wellness. ICD-9 to ICD-10 Coding with Reference to Causes of Death Grouping in Alberta. 2006.

Abbreviations: Canadian Institute for Health Information Discharge Abstract Database (DAD); Canadian Institute for Health Information Same Day Surgery Database (SDS); Canadian Institute for Health Information National Ambulatory Care Reporting System (NACRS); International Classification of Diseases (ICD); Ontario Cancer Registry (OCR); Ontario Drug Benefit Database (ODB); Ontario Health Insurance Plan Database (OHIP); Ontario Registrar General–Death Database (ORGD); sensitivity (SN); specificity (SP)

Appendix 5. Weighted baseline characteristics for women (aged 30-70 years) undergoing bilateral salpingo-oophorectomy (BSO) versus ovarian conservation, stratified by age group at surgery (<45, 45-49, 50-54, ≥55 years). Overlap propensity score weighting mathematically produces exact balance for means of covariates included in the original logistic propensity score model.

Characteristic	<45 years			45-49 years			50-54 years			>55 years		
	No BSO N=78,646	BSO N=17,816	Std Diff	No BSO N=32,958	BSO N=22,467	Std Diff	No BSO N=8,472	BSO N=18,741	Std Diff	No BSO N=4,090	BSO N=17,359	Std Diff
Age (years)												
Mean	40.19	40.19	0.00	47.40	47.40	0.00	51.93	51.93	0.00	61.21	61.21	0.00
Era of surgery, (%)												
1996-2000	35.12	35.12	0.00	25.38	25.38	0.00	17.43	17.43	0.00	16.41	16.41	0.00
2001-2005	26.94	26.94	0.00	27.36	27.36	0.00	27.43	27.43	0.00	30.40	30.40	0.00
2006-2010	18.30	18.30	0.00	24.11	24.11	0.00	28.35	28.35	0.00	29.22	29.22	0.00
2011-2015	19.65	19.65	0.00	23.15	23.15	0.00	26.79	26.79	0.00	23.98	23.98	0.00
Area of residence, (%)												
Urban	83.78	83.78	0.00	86.34	86.34	0.00	86.46	86.46	0.00	84.02	84.02	0.00
Rural	16.22	16.22		13.66	13.66		13.54	13.54		15.98	15.98	
Area-level income quintile, (%)												
Quintile 1 (low)	21.01	21.01	0.00	17.82	17.82	0.00	15.66	15.66	0.00	16.06	16.06	0.00
Quintile 2	20.91	20.91	0.00	19.62	19.62	0.00	19.06	19.06	0.00	19.24	19.24	0.00
Quintile 3	21.14	21.14	0.00	20.74	20.74	0.00	20.01	20.01	0.00	20.84	20.84	0.00
Quintile 4	20.34	20.34	0.00	21.22	21.22	0.00	22.19	22.19	0.00	21.89	21.89	0.00
Quintile 5 (high)	16.59	16.59	0.00	20.60	20.60	0.00	23.08	23.08	0.00	21.96	21.96	0.00
Immigration status, (%)												
Long-term resident	89.77	89.77	0.00	85.88	85.88	0.00	88.13	88.13	0.00	92.24	92.24	0.00
Immigrant	10.23	10.23		14.12	14.12		11.87	11.87		7.76	7.76	
Ethnicity, (%)												
General population	96.12	96.12	0.00	94.39	94.39	0.00	94.58	94.58	0.00	96.06	96.06	0.00
South Asian	1.83	1.83	0.00	2.42	2.42	0.00	2.06	2.06	0.00	1.69	1.69	0.00
Chinese	2.05	2.05	0.00	3.19	3.19	0.00	3.37	3.37	0.00	2.24	2.24	0.00
Hysterectomy type, (%)												
Total	90.59	90.59	0.00	88.55	88.55	0.00	86.98	86.98	0.00	87.57	87.57	0.00
Subtotal	9.41	9.41		11.45	11.45		13.02	13.02		12.43	12.43	
Abnormal uterine bleeding, (%)												
Yes	45.86	45.86	0.00	51.85	51.85	0.00	45.10	45.10	0.00	19.60	19.60	0.00

No	54.14	54.14		48.15	48.15		54.90	54.90		80.40	80.40	
Fibroids, (%)												
Yes	40.28	40.28	0.00	67.95	67.95	0.00	71.89	71.89	0.00	42.27	42.27	0.00
No	59.72	59.72		32.05	32.05		28.11	28.11		57.73	57.73	
Endometriosis, (%)												
Yes	43.46	43.46	0.00	30.30	30.30	0.00	24.41	24.41	0.00	16.01	16.01	0.00
No	56.54	56.54		69.70	69.70		75.59	75.59		83.99	83.99	
Ovarian cyst, (%)												
Yes	22.47	22.47	0.00	18.44	18.44	0.00	83.98	83.98	0.00	19.16	19.16	0.00
No	77.53	77.53		81.56	81.56		16.02	16.02		80.84	80.84	
Pelvic pain/inflammation, (%)												
Yes	38.89	38.89	0.00	22.24	22.24	0.00	84.93	84.93	0.00	11.29	11.29	0.00
No	61.11	61.11		77.76	77.76		15.07	15.07		88.71	88.71	
Premalignant disease, (%)												
Yes	6.26	6.26	0.00	5.85	5.85	0.00	92.87	92.87	0.00	15.87	15.87	0.00
No	93.74	93.74		94.15	94.15		7.13	7.13		84.13	84.13	
Prolapse, (%)												
Yes	2.40	2.40	0.00	4.73	4.73	0.00	10.01	10.01	0.00	36.77	36.77	0.00
No	97.60	97.60		95.27	95.27		89.99	89.99		63.23	63.23	
Comorbidities (ADGs), (%)												
0-5	13.16	13.16	0.00	18.35	18.35	0.00	18.88	18.88	0.00	14.10	14.10	0.00
6-9	50.99	50.99	0.00	54.31	54.31		54.13	54.13	0.00	52.26	52.26	0.00
≥10	35.85	35.85	0.00	27.34	27.34		27.00	27.00	0.00	33.64	33.64	0.00
Hypertension, (%)												
Yes	11.95	11.95	0.00	20.31	20.31	0.00	27.04	27.04	0.00	46.58	46.58	0.00
No	88.05	88.05		79.69	79.69		72.96	72.96		53.42	53.42	
Diabetes, (%)												
Yes	5.14	5.14	0.00	6.03	6.03	0.00	6.49	6.49	0.00	12.34	12.34	0.00
No	94.86	94.86		93.97	93.97		93.51	93.51		87.66	87.66	
Chronic obstructive pulmonary disease, (%)												
Yes	4.66	4.66	0.00	6.55	6.55	0.00	6.33	6.33	0.00	9.98	9.98	0.00
No	95.34	95.34		93.45	93.45		93.67	93.67		90.02	90.02	
Prior malignancy, (%)												
Yes	1.15	1.15	0.00	1.57	1.57	0.00	1.74	1.74	0.00	2.93	2.93	0.00

No	98.85	98.85		98.43	98.43		98.26	98.26		97.07	97.07	
Cardiovascular disease, (%)												
Yes	3.43	3.43	0.00	4.00	4.00	0.00	4.38	4.38	0.00	12.80	12.80	0.00
No	96.57	96.57		96.00	96.00		95.62	95.62		87.20	87.20	
Prior ovarian surgery, (%)												
Yes	18.40	18.40	0.00	7.09	7.09	0.00	4.36	4.36	0.00	2.36	2.36	0.00
No	81.60	81.60		92.91	92.91		95.64	95.64		97.64	97.64	
Prior abdominopelvic surgery, (%)												
0	41.66	41.66	0.00	62.89	62.89	0.00	69.40	69.40	0.00	76.38	76.38	0.00
1	31.30	31.30	0.00	25.31	25.31	0.00	22.36	22.36	0.00	18.51	18.51	0.00
2	15.49	15.49	0.00	7.89	7.89	0.00	5.94	5.94	0.00	3.71	3.71	0.00
3+	11.56	11.56	0.00	3.83	3.83	0.00	2.30	2.30	0.00	1.39	1.39	0.00

Abbreviations: Bilateral salpingo-oophorectomy (BSO); standardized difference (Std Diff); Johns Hopkins Aggregated Diagnosis Groups (ADGs)

Appendix 6. Unweighted mortality outcomes for women (aged 30-70 years) undergoing bilateral salpingo-oophorectomy (BSO) versus ovarian conservation, stratified by age group at surgery (<45, 45-49, 50-54, ≥55 years).

Outcome	<45 years		45-49 years		50-54 years		≥55 years	
	No BSO N=78,646	BSO N=17,816	No BSO N=32,958	BSO N=22,467	No BSO N=8,472	BSO N=18,741	No BSO N=4,090	BSO N=17,359
Follow-up (years)								
Median (IQR)	13 (8-17)	14 (8-18)	11 (7-15)	13 (8-18)	10 (6-14)	12 (7-17)	11 (7-14)	11 (6-16)
Status at end of follow-up, No. (%)								
Alive	77,002 (97.9)	17,192 (96.5)	32,256 (97.9)	21,653 (96.4)	8,211 (96.9)	18,020 (96.2)	3,713 (90.8)	15,469 (89.1)
Death*	1,644 (2.1)	624 (3.5)	702 (2.1)	814 (3.6)	261 (3.1)	721 (3.8)	377 (9.2)	1,890 (10.9)
Non-cancer	928 (1.2)	373 (2.1)	299 (0.9)	405 (1.8)	109 (1.3)	319 (1.7)	203 (5.0)	1,117 (6.4)
Cancer	682 (0.9)	236 (1.3)	390 (1.2)	391 (1.7)	148 (1.7)	397 (2.1)	171 (4.2)	741 (4.3)

* Data were missing for cause of death (N=124, 1.76% of deaths)

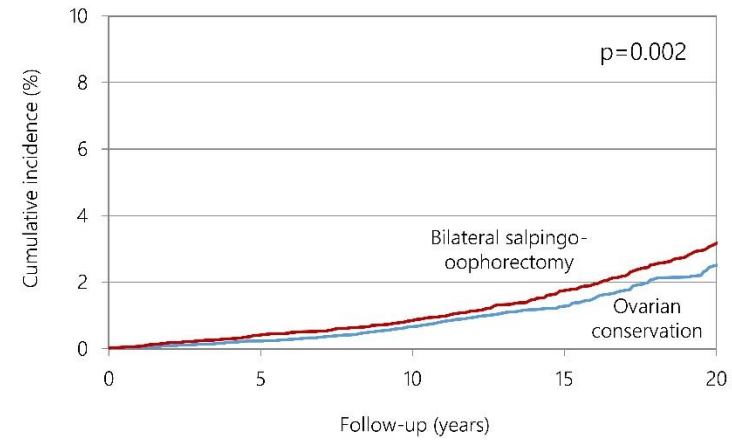
Abbreviations: Bilateral salpingo-oophorectomy (BSO); interquartile range (IQR), number (No.)

Appendix 7. Weighted cumulative incidence of non-cancer death in women (aged 30-70 years) undergoing non-malignant hysterectomy with bilateral salpingo-oophorectomy or ovarian conservation, stratified by age group at surgery (<45, 45-49, 50-54, ≥ 55 years).

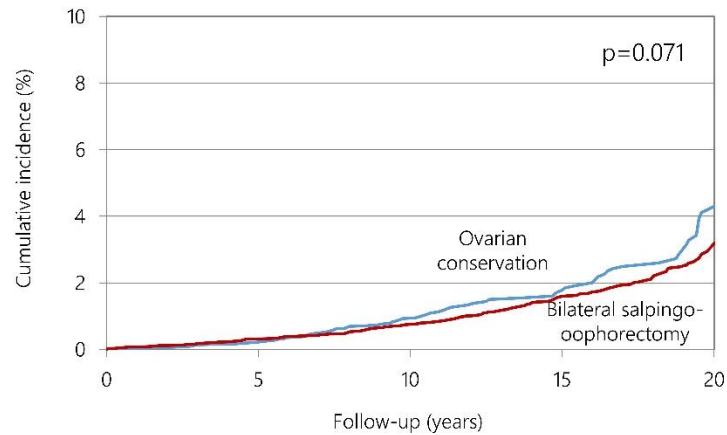
a) <45 years



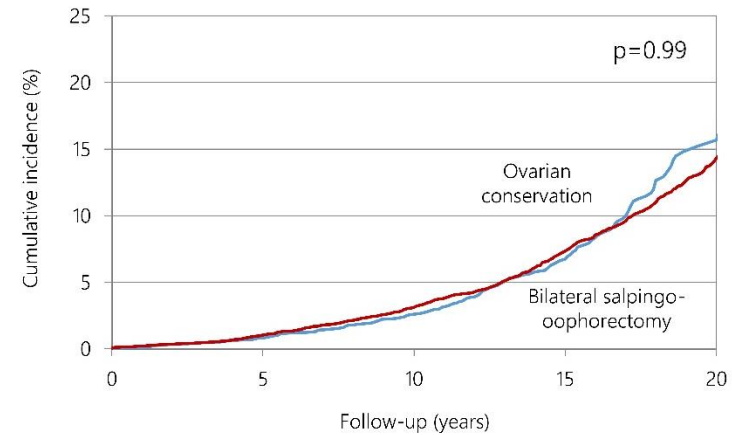
b) 45-49 years



c) 50-54 years

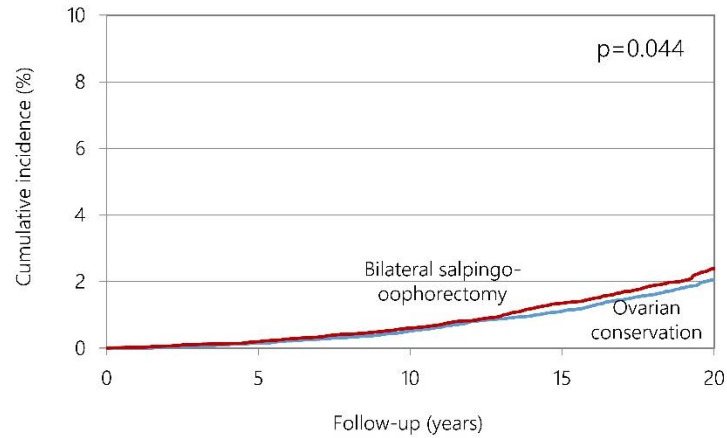


d) ≥ 55 years

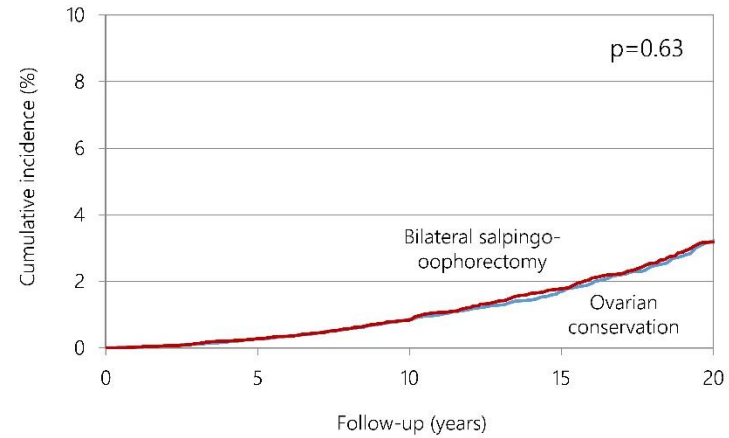


Appendix 8. Weighted cumulative incidence of cancer death in women (aged 30-70 years) undergoing non-malignant hysterectomy with bilateral salpingo-oophorectomy or ovarian conservation, stratified by age group at surgery (<45, 45-49, 50-54, ≥ 55 years).

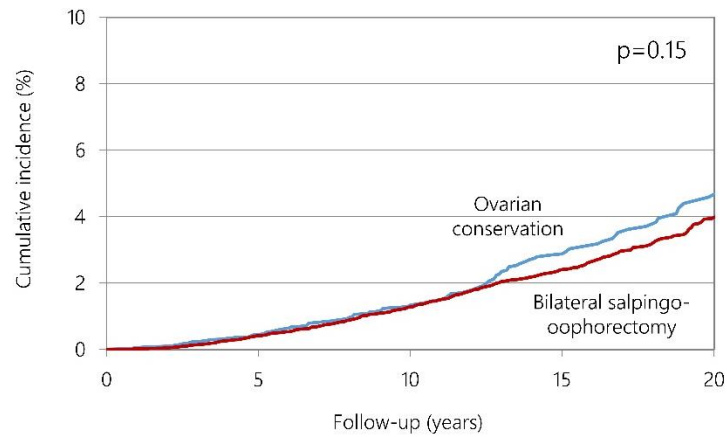
a) <45 years



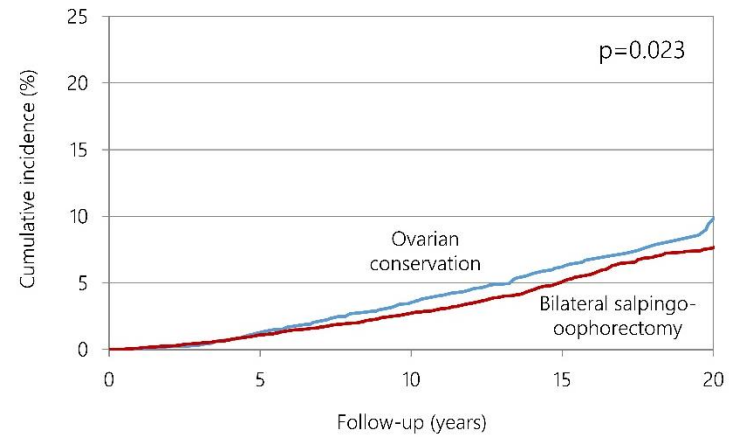
b) 45-49 years



c) 50-54 years



d) ≥ 55 years



Appendix 9. (a) Women (aged 30-70 years) undergoing bilateral salpingo-oophorectomy (BSO) at some point after non-malignant hysterectomy, and (b) sensitivity analyses modelling BSO as a time-varying covariate in a traditional multivariable Cox proportional hazards model; ovarian conservation serves as the referent category. All analyses are stratified by age group at surgery (<45, 45-49, 50-54, ≥55 years); p<0.0125 (0.05/4) was considered statistically significant, and p-values from 0.0125-0.05 were considered marginally significant.

a)

	<45 years (N=96,462)	45-49 years (N=55,425)	50-54 years (N=27,213)	≥55 years (N=21,449)
Status at index hysterectomy, <i>No. (%)</i>				
Ovarian conservation	78,646 (81.5)	32,958 (59.5)	8,472 (31.1)	4,090 (19.1)
Bilateral salpingo-oophorectomy	17,816 (18.5)	22,467 (40.5)	18,741 (68.9)	17,359 (80.9)
Any BSO after index hysterectomy, <i>No. (%)</i> ^a	2,470 (2.6)	597 (1.1)	117 (0.4)	28 (0.13)
BSO for non-malignant indications ^b	1,098 (44.5)	211 (35.3)	49 (41.9)	18 (64.3)
BSO for ovarian mass or cancer ^b	1,372 (55.5)	386 (64.7)	68 (58.1)	10 (35.7)

^a Denominator is patients who underwent ovarian conservation at index hysterectomy

^b Denominator is patients who underwent any BSO after index hysterectomy

b)

Outcome	<45 years		45-49 years		50-54 years		≥55 years	
	HR (95% CI)	p-value	HR (95% CI)	p-value	HR (95% CI)	p-value	HR (95% CI)	p-value
All-cause death	1.25 (1.13-1.38)	<0.001	1.16 (1.04-1.29)	0.010	0.85 (0.73-0.99)	0.036	0.95 (0.84-1.07)	0.38
Non-cancer death	1.33 (1.17-1.52)	<0.001	1.31 (1.12-1.54)	0.001	0.82 (0.66-1.03)	0.088	1.04 (0.89-1.22)	0.60
Cancer death	1.12 (0.95-1.31)	0.19	1.03 (0.88-1.20)	0.73	0.89 (0.73-1.09)	0.25	0.82 (0.69-0.98)	0.030

Abbreviations: CI (confidence interval); HR (hazard ratio)

Appendix 10. Association between bilateral salpingo-oophorectomy and (a) death due to cardiovascular disease, and (b) death due to upper gastrointestinal tract cancer in women (aged 30-70 years) undergoing non-malignant hysterectomy. All analyses were stratified by age group at surgery (<45, 45-49, 50-54, >55 years), with ovarian conservation serving as the referent category.

Outcome	<45 years		45-49 years		50-54 years		≥55 years	
	HR (95% CI)	p-value	HR (95% CI)	p-value	HR (95% CI)	p-value	HR (95% CI)	p-value
Death due to cardiovascular disease	1.47 (1.07-2.03)	0.019	1.24 (0.86-1.80)	0.25	0.91 (0.55-1.50)	0.91	0.95 (0.84-1.07)	0.83
Death due to upper gastrointestinal tract cancer	0.93 (0.50-1.75)	0.83	1.07 (0.60-1.92)	0.81	1.26 (0.57-2.77)	0.57	1.08 (0.54-2.17)	0.82