

## Supplementary materials

**Supplementary material 1.** Details of the search strategy  
 Search Strategy 1: PubMed (MEDLINE), Search date:14 September 2023  
 Terms: “Metabolic Syndrome” AND “Genital Neoplasms, Female”

Search number	Query	Results
	"Metabolic Syndrome" [Mesh] OR "Syndrome X" OR "Dysmetabolic Syndrome" OR "Cardiometabolic Syndrome" OR "Insulin Resistance Syndrome" OR "Reaven Syndrome"	41,971
	"Fallopian Tube Neoplasms" [Mesh] OR "Fallopian Tube Neoplasm" OR "Neoplasm, Fallopian Tube" OR "Neoplasms, Fallopian Tube" OR "Fallopian Tube Cancer" OR "Cancer, Fallopian Tube" OR "Cancers, Fallopian Tube" OR "Fallopian Tube Cancers" OR "Cancer of the Fallopian Tube"	5,017
	"Uterine Neoplasms" [Mesh] OR "Neoplasms, Uterine" OR "Neoplasm, Uterine" OR "Uterine Neoplasm" OR "Neoplasms, Uterus" OR "Neoplasm, Uterus" OR "Uterus Neoplasm" OR "Uterus Neoplasms" OR "Cancer of Uterus" OR "Uterus Cancers" OR "Cancer of the Uterus" OR "Uterus Cancer" OR "Cancer, Uterus" OR "Cancers, Uterus" OR "Uterine Cancer" OR "Cancer, Uterine"	149,991
4	"Endometrial Neoplasms" [Mesh] OR "Endometrial Neoplasm" OR "Neoplasm, Endometrial" OR "Neoplasms, Endometrial" OR "Endometrial Carcinoma" OR "Carcinoma, Endometrial" OR "Carcinomas, Endometrial" OR "Endometrial Carcinomas" OR "Endometrial Cancer" OR "Cancer, Endometrial" OR "Cancers, Endometrial" OR "Endometrial Cancers" OR "Endometrium Cancer" OR "Cancer, Endometrium" OR "Cancers, Endometrium" OR "Cancer of the Endometrium" OR "Carcinoma of Endometrium" OR "Endometrium Carcinoma" OR "Endometrium Carcinomas" OR "Cancer of Endometrium" OR "Endometrium Cancers"	38,736
5	"Uterine Cervical Neoplasms" [Mesh] OR "Cervical Neoplasm, Uterine" OR "Cervical Neoplasms, Uterine" OR "Neoplasm, Uterine Cervical" OR "Neoplasms, Uterine Cervical" OR "Uterine Cervical Neoplasm" OR "Neoplasms, Cervical" OR "Cervical Neoplasms" OR "Cervical Neoplasm" OR "Neoplasm, Cervical" OR "Neoplasms, Cervix" OR "Cervix Neoplasms" OR "Cervix Neoplasm" OR "Neoplasm, Cervix" OR "Cancer of the Uterine Cervix" OR "Cancer of the Cervix" OR "Cervical Cancer" OR "Uterine Cervical Cancer" OR "Cancer, Uterine Cervical" OR "Cancers, Uterine Cervical" OR "Cervical Cancer, Uterine" OR "Cervical Cancers, Uterine" OR "Uterine Cervical Cancers" OR "Cancer of Cervix" OR "Cervix Cancer" OR "Cancer, Cervix" OR "Cancers, Cervix"	110,152
6	"Vaginal Neoplasms" [Mesh] OR "Neoplasm, Vaginal" OR "Vaginal Neoplasm" OR "Vagina Neoplasms" OR "Neoplasm, Vagina" OR "Neoplasms, Vagina" OR "Vagina Neoplasm" OR "Neoplasms, Vaginal" OR "Vaginal Cancer" OR "Cancer, Vaginal" OR "Cancers, Vaginal" OR "Vaginal Cancers" OR "Cancer of the Vagina" OR "Cancer of Vagina" OR "Vagina Cancers" OR "Vagina Cancer" OR "Cancer, Vagina" OR "Cancers, Vagina"	32,838
7	"Vulvar Neoplasms" [Mesh] OR "Neoplasm, Vulvar" OR "Vulvar Neoplasm" OR "Vulva Neoplasms" OR "Neoplasm, Vulva" OR "Neoplasms, Vulva" OR "Vulva Neoplasm" OR "Neoplasms, Vulvar" OR "Cancer of Vulva" OR "Vulva Cancers" OR "Cancer of the Vulva" OR "Vulva Cancer" OR "Cancer, Vulva" OR "Cancers, Vulva" OR "Vulvar Cancer" OR "Cancer, Vulvar" OR "Cancers, Vulvar" OR "Vulvar Cancers"	11,862
8	"Ovarian Neoplasms" [Mesh] OR "Neoplasm, Ovarian" OR "Ovarian Neoplasm" OR "Ovary Neoplasms" OR "Neoplasm, Ovary" OR "Neoplasms, Ovary" OR "Ovary Neoplasm" OR "Neoplasms, Ovarian" OR "Ovary Cancer" OR "Cancer, Ovary" OR "Cancers, Ovary" OR "Ovary Cancers" OR "Ovarian Cancer" OR "Cancer, Ovarian" OR "Cancers, Ovarian" OR "Ovarian Cancers" OR "Cancer of Ovary" OR "Cancer of the Ovary"	118,900
9	"Brenner Tumor" [Mesh] OR "Proliferative Brenner Tumor" OR "Brenner Tumor, Proliferative" OR "Malignant Brenner Tumor" OR "Brenner Tumor, Malignant" OR "Brenner Tumor of Ovary" OR "Ovary Brenner Tumor" OR "Ovarian Brenner Tumor" OR "Benign Brenner Tumor" OR "Brenner Tumor, Benign"	3,094
10	"Carcinoma, Endometrioid" [Mesh] OR "Carcinomas, Endometrioid" OR "Endometrioid Carcinoma" OR "Endometrioid Carcinomas" OR "Adenocarcinoma, Endometrioid" OR "Adenocarcinomas, Endometrioid" OR "Endometrioid Adenocarcinomas" OR "Endometrioid Adenocarcinoma"	6,198
11	"Carcinoma, Ovarian Epithelial" [Mesh] OR "Carcinomas, Ovarian Epithelial" OR "Epithelial Carcinoma, Ovarian" OR "Epithelial Carcinomas, Ovarian" OR "Ovarian Epithelial Carcinomas" OR "Epithelial Ovarian Cancer" OR "Ovarian Epithelial Cancer" OR "Cancer, Ovarian Epithelial" OR "Cancers, Ovarian Epithelial" OR "Epithelial Cancer, Ovarian" OR "Epithelial Cancers, Ovarian" OR "Ovarian Epithelial Cancers" OR "Ovarian Cancer, Epithelial" OR "Cancer, Epithelial Ovarian" OR "Cancers, Epithelial Ovarian" OR "Epithelial Ovarian Cancers" OR "Ovarian Cancers, Epithelial" OR "Ovarian Epithelial Carcinoma" OR "Epithelial Ovarian Carcinoma" OR "Carcinoma, Epithelial Ovarian" OR "Carcinomas, Epithelial Ovarian" OR "Epithelial Ovarian Carcinomas" OR "Ovarian Carcinoma, Epithelial" OR "Ovarian Carcinomas, Epithelial"	24,767
12	"Granulosa Cell Tumor" [Mesh] OR "Granulosa Cell Tumors" OR "Tumor, Granulosa Cell" OR "Tumors, Granulosa Cell" OR "Granulosa Cell Cancer" OR "Cancer, Granulosa Cell" OR "Cancers, Granulosa Cell" OR "Cell Cancer, Granulosa" OR "Cell Cancers, Granulosa" OR "Granulosa Cell Cancers" OR "Cancer of Granulosa Cells" OR "Cells Cancer, Granulosa" OR "Cells Cancers, Granulosa" OR "Granulosa Cells Cancer" OR "Granulosa Cells Cancers"	4,684
13	"Hereditary Breast and Ovarian Cancer Syndrome" [Mesh] OR "HBOC Syndrome" OR "HBOC Syndromes" OR "Syndrome, HBOC" OR "Syndromes, HBOC"	557
14	"Luteoma" [Mesh] OR "Luteomas" OR "Luteinoma" OR "Pregnancy Luteoma" OR "Luteoma, Pregnancy" OR "Luteomas, Pregnancy" OR "Pregnancy Luteomas" OR "Gestational Luteoma" OR "Gestational Luteomas" OR "Luteoma, Gestational" OR "Luteomas, Gestational" OR "Luteoma of Pregnancy"	252
15	"Meigs Syndrome" [Mesh] OR "Meigs' Syndrome" OR "Meig Syndrome" OR "Meig's Syndrome"	741
16	"Sertoli-Leydig Cell Tumor" [Mesh] OR "Cell Tumor, Sertoli-Leydig" OR "SertoliLeydig Cell Tumor" OR "Tumor, Sertoli-Leydig Cell" OR "Arrhenoblastoma" OR "Arrhenoblastomas" OR "Sertoli-Leydig Cell Tumors" OR "Cell Tumors, Sertoli-Leydig" OR "SertoliLeydig Cell Tumors" OR "Tumors, Sertoli-Leydig Cell" OR "Androblastoma" OR "Androblastomas"	3,604
17	"Thecoma" [Mesh] OR "Thecomas" OR "Theca Cell Tumor" OR "Theca Cell Tumors" OR "Tumor, Theca Cell" OR "Tumors, Theca Cell"	1,376
18	#1 AND (#2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17)	108

Search Strategy 2: Google Scholar, Search date: 12 September 2023  
 Terms: "Metabolic Syndrome" AND "Genital Neoplasms, Female"

Search number	Query	Results
1	"Metabolic Syndrome"	19,60,000
2	"fallopian tube" AND (neoplasms OR cancer)	32,300
3	uterine AND (neoplasms OR cancer)	1,78,000
4	endometrial AND (neoplasms OR cancer OR carcinoma)	1,83,000
5	(uterine OR cervical OR cervix) AND (neoplasms OR cancer)	66,300
6	(vaginal OR vagina) AND (neoplasms OR cancer)	26300
7	(vulvar OR vulva) AND (neoplasms OR cancer)	27,000
8	(ovarian OR ovary) AND (neoplasms OR cancer)	1,11,000
9	"Brenner Tumor"	4,700
10	Endometrioid AND carcinoma	64,400
11	(ovarian AND epithelial) AND (carcinoma OR cancer)	11,80,000
12	("granulosa cell") AND (tumor OR cancer)	31,500
13	"Hereditary Breast and Ovarian Cancer Syndrome"	3,880
14	"Luteoma" OR "Luteomas"	3,670
15	"Meigs Syndrome" OR "Meigs' Syndrome" OR "Meig Syndrome" OR "Meig's Syndrome"	4,350
16	"Sertoli-Leydig Cell Tumor" OR "Arrhenoblastoma" OR "Androblastomas"	5,810
17	"Thecoma" OR "Thecomas" OR "Theca Cell Tumor"	7,860
18	#1 AND #2	1310
19	#1 AND #3	33,200
20	#1 AND #4	33,300
21	#1 AND #5	39,900
22	#1 AND #6	17,600
23	#1 AND #7	2,240
24	#1 AND #8	69,200
25	#1 AND #9	34
26	#1 AND #10	17,800
27	#1 AND #11	25,200
28	#1 AND #12	300
29	#1 AND #13	80
30	#1 AND #14	159
31	#1 AND #15	48
32	#1 AND #16	107
33	#1 AND #17	129
34	#1 AND (#2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 #10 OR #11 OR #12 OR #13 OR #14 OR #13 OR #14 OR #15 OR #16 OR #17)	1350

Search Strategy 3: Scopus, Search date: 12 September 2023  
 Terms: "Metabolic Syndrome" AND "Genital Neoplasms, Female"

Search number	Query	Results
	"Metabolic Syndrome" [Mesh] OR "Syndrome X" OR "Dysmetabolic Syndrome" OR "Cardiometabolic Syndrome" OR "Insulin Resistance Syndrome" OR "Reaven Syndrome"	88514
	"Fallopian Tube Neoplasms" [Mesh] OR "Fallopian Tube Neoplasm" OR "Neoplasm, Fallopian Tube" OR "Neoplasms, Fallopian Tube" OR "Fallopian Tube Cancer" OR "Cancer, Fallopian Tube" OR "Cancers, Fallopian Tube" OR "Fallopian Tube Cancers" OR "Cancer of the Fallopian Tube"	2605
	"Uterine Neoplasms" [Mesh] OR "Neoplasms, Uterine" OR "Neoplasm, Uterine" OR "Uterine Neoplasm" OR "Neoplasms, Uterus" OR "Neoplasm, Uterus" OR "Uterus Neoplasm" OR "Uterus Neoplasms" OR "Cancer of Uterus" OR "Uterus Cancers" OR "Cancer of the Uterus" OR "Uterus Cancer" OR "Cancer, Uterus" OR "Cancers, Uterus" OR "Uterine Cancer" OR "Cancer, Uterine"	39,683
4	"Endometrial Neoplasms" [Mesh] OR "Endometrial Neoplasm" OR "Neoplasm, Endometrial" OR "Neoplasms, Endometrial" OR "Endometrial Carcinoma" OR "Carcinoma, Endometrial" OR "Carcinomas, Endometrial" OR "Endometrial Carcinomas" OR "Endometrial Cancer" OR "Cancer, Endometrial" OR "Cancers, Endometrial" OR "Endometrial Cancers" OR "Endometrium Cancer" OR "Cancer, Endometrium" OR "Cancers, Endometrium" OR "Cancer of the Endometrium" OR "Carcinoma of Endometrium" OR "Endometrium Carcinoma" OR "Endometrium Carcinomas" OR "Cancer of Endometrium" OR "Endometrium Cancers"	19,715
5	"Uterine Cervical Neoplasms" [Mesh] OR "Cervical Neoplasm, Uterine" OR "Cervical Neoplasms, Uterine" OR "Neoplasm, Uterine Cervical" OR "Neoplasms, Uterine Cervical" OR "Uterine Cervical Neoplasm" OR "Neoplasms, Cervical" OR "Cervical Neoplasms" OR "Cervical Neoplasm" OR "Neoplasm, Cervical" OR "Neoplasms, Cervix" OR "Cervix Neoplasms" OR "Cervix Neoplasm" OR "Neoplasm, Cervix" OR "Cancer of the Uterine Cervix" OR "Cancer of the Cervix" OR "Cervical Cancer" OR "Uterine Cervical Cancer" OR "Cancer, Uterine Cervical" OR "Cancers, Uterine Cervical" OR "Cervical Cancer, Uterine" OR "Cervical Cancers, Uterine" OR "Uterine Cervical Cancers" OR "Cancer of Cervix" OR "Cervix Cancer" OR "Cancer, Cervix" OR "Cancers, Cervix"	52,813
6	"Vaginal Neoplasms" [Mesh] OR "Neoplasm, Vaginal" OR "Vaginal Neoplasm" OR "Vagina Neoplasms" OR "Neoplasm, Vagina" OR "Neoplasms, Vagina" OR "Vagina Neoplasm" OR "Neoplasms, Vaginal" OR "Vaginal Cancer" OR "Cancer, Vaginal" OR "Cancers, Vaginal" OR "Vaginal Cancers" OR "Cancer of the Vagina" OR "Cancer of Vagina" OR "Vagina Cancers" OR "Vagina Cancer" OR "Cancer, Vagina" OR "Cancers, Vagina"	4,804
7	"Vulvar Neoplasms" [Mesh] OR "Neoplasm, Vulvar" OR "Vulvar Neoplasm" OR "Vulva Neoplasms" OR "Neoplasm, Vulva" OR "Neoplasms, Vulva" OR "Vulva Neoplasm" OR "Neoplasms, Vulvar" OR "Cancer of Vulva" OR "Vulva Cancers" OR "Cancer of the Vulva" OR "Vulva Cancer" OR "Cancer, Vulva" OR "Cancers, Vulva" OR "Vulvar Cancer" OR "Cancer, Vulvar" OR "Cancers, Vulvar" OR "Vulvar Cancers"	7,704
8	"Ovarian Neoplasms" [Mesh] OR "Neoplasm, Ovarian" OR "Ovarian Neoplasm" OR "Ovary Neoplasms" OR "Neoplasm, Ovary" OR "Neoplasms, Ovary" OR "Ovary Neoplasm" OR "Neoplasms, Ovarian" OR "Ovary Cancer" OR "Cancer, Ovary" OR "Cancers, Ovary" OR "Ovary Cancers" OR "Ovarian Cancer" OR "Cancer, Ovarian" OR "Cancers, Ovarian" OR "Ovarian Cancers" OR "Cancer of Ovary" OR "Cancer of the Ovary"	82,406
9	"Brenner Tumor" [Mesh] OR "Proliferative Brenner Tumor" OR "Brenner Tumor, Proliferative" OR "Malignant Brenner Tumor" OR "Brenner Tumor, Malignant" OR "Brenner Tumor of Ovary" OR "Ovary Brenner Tumor" OR "Ovarian Brenner Tumor" OR "Benign Brenner Tumor" OR "Brenner Tumor, Benign"	786
10	"Carcinoma, Endometrioid" [Mesh] OR "Carcinomas, Endometrioid" OR "Endometrioid Carcinoma" OR "Endometrioid Carcinomas" OR "Adenocarcinoma, Endometrioid" OR "Adenocarcinomas, Endometrioid" OR "Endometrioid Adenocarcinomas" OR "Endometrioid Adenocarcinoma"	3,407
11	"Carcinoma, Ovarian Epithelial" [Mesh] OR "Carcinomas, Ovarian Epithelial" OR "Epithelial Carcinoma, Ovarian" OR "Epithelial Carcinomas, Ovarian" OR "Ovarian Epithelial Carcinomas" OR "Epithelial Ovarian Cancer" OR "Ovarian Epithelial Cancer" OR "Cancer, Ovarian Epithelial" OR "Cancers, Ovarian Epithelial" OR "Epithelial Cancer, Ovarian" OR "Epithelial Cancers, Ovarian" OR "Ovarian Epithelial Cancers" OR "Ovarian Cancer, Epithelial" OR "Cancer, Epithelial Ovarian" OR "Cancers, Epithelial Ovarian" OR "Epithelial Ovarian Cancers" OR "Ovarian Cancers, Epithelial" OR "Ovarian Epithelial Carcinoma" OR "Epithelial Ovarian Carcinoma" OR "Carcinoma, Epithelial Ovarian" OR "Carcinomas, Epithelial Ovarian" OR "Epithelial Ovarian Carcinomas" OR "Ovarian Carcinoma, Epithelial" OR "Ovarian Carcinomas, Epithelial"	2,409
12	"Granulosa Cell Tumor" [Mesh] OR "Granulosa Cell Tumors" OR "Tumor, Granulosa Cell" OR "Tumors, Granulosa Cell" OR "Granulosa Cell Cancer" OR "Cancer, Granulosa Cell" OR "Cancers, Granulosa Cell" OR "Cell Cancer, Granulosa" OR "Cell Cancers, Granulosa" OR "Granulosa Cell Cancers" OR "Cancer of Granulosa Cells" OR "Cells Cancer, Granulosa" OR "Cells Cancers, Granulosa" OR "Granulosa Cells Cancer" OR "Granulosa Cells Cancers"	9,079
13	"Hereditary Breast and Ovarian Cancer Syndrome" [Mesh] OR "HBOC Syndrome" OR "HBOC Syndromes" OR "Syndrome, HBOC" OR "Syndromes, HBOC"	166
14	"Luteoma" [Mesh] OR "Luteomas" OR "Luteinoma" OR "Pregnancy Luteoma" OR "Luteoma, Pregnancy" OR "Luteomas, Pregnancy" OR "Pregnancy Luteomas" OR "Gestational Luteoma" OR "Gestational Luteomas" OR "Luteoma, Gestational" OR "Luteomas, Gestational" OR "Luteoma of Pregnancy"	367
15	"Meigs Syndrome" [Mesh] OR "Meigs' Syndrome" OR "Meig Syndrome" OR "Meig's Syndrome"	1,502
16	"Sertoli-Leydig Cell Tumor" [Mesh] OR "Cell Tumor, Sertoli-Leydig" OR "SertoliLeydig Cell Tumor" OR "Tumor, Sertoli-Leydig Cell" OR "Arrhenoblastoma" OR "Arrhenoblastomas" OR "Sertoli-Leydig Cell Tumors" OR "Cell Tumors, Sertoli-Leydig" OR "SertoliLeydig Cell Tumors" OR "Tumors, Sertoli-Leydig Cell" OR "Androblastoma" OR "Androblastomas"	2,066
17	"Thecoma" [Mesh] OR "Thecomas" OR "Theca Cell Tumor" OR "Theca Cell Tumors" OR "Tumor, Theca Cell" OR "Tumors, Theca Cell"	712
18	#11 AND (#12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27)	132

Query: "Metabolic Syndrome" AND (("fallopian tube" AND (neoplasms OR cancer)) OR (uterine AND (neoplasms OR cancer)) OR (endometrial AND (neoplasms OR cancer OR carcinoma)) OR ((uterine OR cervical OR cervix) AND (neoplasms OR cancer)) OR ((vaginal OR vagina) AND (neoplasms OR cancer)) OR ((vulvar OR vulva) AND (neoplasms OR cancer)) OR ((ovarian OR ovary) AND (neoplasms OR cancer)) OR ("Brenner Tumor") OR (Endometrioid AND carcinoma) OR ((ovarian AND epithelial) AND (carcinoma OR cancer)) OR (("granulosa cell") AND (tumor OR cancer)) OR ("Hereditary Breast and Ovarian Cancer Syndrome") OR ("Luteoma" OR "Luteomas") OR ("Meigs Syndrome" OR "Meigs' Syndrome" OR "Meig Syndrome" OR "Meig's Syndrome") OR ("Sertoli-Leydig Cell Tumor" OR "Arrhenoblastoma" OR "Androblastomas") OR ("Thecoma" OR "Thecomas" OR "Theca Cell Tumor"))