

Appendix 1. International Classification of Disease, 9th edition, Clinical Modification (ICD-9-CM) Diagnosis Codes Used to Define Leiomyoma, Bulk Symptoms, and Comorbidities

Diagnoses	ICD-9-CM	Description
Uterine fibroids	218.xx 218.0 218.1 218.2 218.9 219.xx 219.0 219.1 219.8 219.9 654.1x 654.10 654.11 654.12 654.13 654.14	Uterine leiomyoma Submucous leiomyoma of uterus Intramural leiomyoma of uterus Subserous leiomyoma of uterus Leiomyoma of uterus, unspecified Other benign neoplasm of uterus Benign neoplasm of cervix uteri Benign neoplasm of corpus uteri Benign neoplasm of other specified parts of uterus Benign neoplasm of uterus, part unspecified Tumors of body of uterus Tumors of body of uterus, unspecified as to episode of care or not applicable Tumors of body of uterus, delivered, with or without mention of antepartum condition Tumors of body of uterus, delivered, with mention of postpartum complication Tumors of body of uterus, antepartum condition or complication Tumors of body of uterus, postpartum condition or complication
Bulk symptoms		
<i>Pelvic pain or pressure</i>	625.0 625.3 789.03 789.63 789.64 789.9 789.00 789.04 789.07 789.09	Dyspareunia Dysmenorrhea Abdominal pain, right lower quadrant Abdominal tenderness, right lower quadrant Abdominal tenderness, left lower quadrant Other symptoms involving abdomen and pelvis Abdominal pain, unspecified site Abdominal pain, left lower quadrant Abdominal pain, generalized Abdominal pain, other specified site
<i>Urinary problems</i>	591.xx 593.5x 788.1 788.2 788.20	Hydronephrosis Hydroureter Dysuria Retention of urine Retention of urine, unspecified

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	788.21	Incomplete bladder emptying
	788.29	Other specified retention of urine
	788.3	Urinary incontinence
	788.30	Urinary incontinence, unspecified
	788.31	Urge incontinence
	788.33	Mixed incontinence (male) (female)
	788.34	Incontinence without sensory awareness
	788.35	Post-void dribbling
	788.36	Nocturnal enuresis
	788.37	Continuous leakage
	788.38	Overflow incontinence
	788.39	Other urinary incontinence
	788.4	Frequency of urination and polyuria
	788.41	Urinary frequency
	788.42	Polyuria
	788.43	Nocturia
	788.5	Oliguria and anuria
	788.6	Other abnormality of urination
	788.61	Splitting of urinary stream
	788.62	Slowing of urinary stream
	788.63	Urgency of urination
	788.64	Urinary hesitancy
	788.65	Straining on urination
	788.69	Other abnormality of urination
	788.7	Urethral discharge
	788.8	Extravasation of urine
	788.9	Other symptoms involving urinary system
	788.91	Functional urinary incontinence
	788.99	Other symptoms involving urinary system
Nocturia	788.43	Nocturia
Constipation	564.00	Constipation, unspecified
	564.09	Other constipation
	787.3	Flatulence, eructation, and gas pain
	564.0	Constipation
	564.01	Slow transit constipation
	564.02	Outlet dysfunction constipation
Dyspareunia	625.0	Dyspareunia
Uterine Cancer	179	Malignant neoplasm of uterus, part unspecified
	182	Malignant neoplasm of body of uterus
	182.0	Malignant neoplasm of corpus uteri, except isthmus

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	182.1	Malignant neoplasm of isthmus
	182.8	Malignant neoplasm of other specified sites of body of uterus
Other pelvic malignancy	183	Malignant neoplasm of ovary and other uterine adnexa
	183.0	Malignant neoplasm of ovary
	183.2	Malignant neoplasm of fallopian tube
	183.3	Malignant neoplasm of broad ligament of uterus
	183.4	Malignant neoplasm of parametrium
	183.5	Malignant neoplasm of round ligament of uterus
	183.8	Malignant neoplasm of other specified sites of uterine adnexa
	183.9	Malignant neoplasm of uterine adnexa, unspecified site
Heavy menstrual bleeding	626.2	Excessive or frequent menstruation
	627.0	Premenopausal menorrhagia
Anemia	280.xx	Iron deficiency anemias
	280.0	Iron deficiency anemia secondary to blood loss (chronic)
	280.1	Iron deficiency anemia secondary to inadequate dietary iron intake
	280.8	Other specified iron deficiency anemias
	280.9	Iron deficiency anemia, unspecified
	285.1	Acute posthemorrhagic anemia
	285.2	Anemia of chronic disease
	285.29	Anemia of other chronic disease
	285.8	Other specified anemias
	285.9	Anemia, unspecified
Inflammatory diseases	614.xx	Inflammatory disease of ovary, fallopian tube, pelvic cellular tissue, and peritoneum
	614.0	Acute salpingitis and oophoritis
	614.1	Chronic salpingitis and oophoritis
	614.2	Salpingitis and oophoritis not specified as acute, subacute, or chronic
	614.3	Acute parametritis and pelvic cellulitis
	614.4	Chronic or unspecified parametritis and pelvic cellulitis
	614.5	Acute or unspecified pelvic peritonitis, female

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	614.6	Pelvic peritoneal adhesions, female (postoperative) (postinfection)
	614.7	Other chronic pelvic peritonitis, female
	614.8	Other specified inflammatory disease of female pelvic organs and tissues
	614.9	Unspecified inflammatory disease of female pelvic organs and tissues
	615	Inflammatory diseases of uterus, except cervix
	615.0	Acute inflammatory diseases of uterus, except cervix
	615.1	Chronic inflammatory diseases of uterus, except cervix
	615.9	Unspecified inflammatory disease of uterus
Noninflammatory diseases	620.xx	Noninflammatory disorders of ovary, fallopian tube, and broad ligament
	620.0	Follicular cyst of ovary
	620.1	Corpus luteum cyst or hematoma
	620.2	Other and unspecified ovarian cyst
	620.3	Acquired atrophy of ovary and fallopian tube
	620.4	Prolapse or hernia of ovary and fallopian tube
	620.5	Torsion of ovary, ovarian pedicle, or fallopian tube
	620.6	Broad ligament laceration syndrome
	620.7	Hematoma of broad ligament
	620.8	Other noninflammatory disorders of ovary, fallopian tube, and broad ligament
	620.9	Unspecified noninflammatory disorder of ovary, fallopian tube, and broad ligament
	622.xx	Noninflammatory disorders of cervix
	622.0	Erosion and ectropion of cervix
	622.1	Dysplasia of cervix (uteri)
	622.10	Dysplasia of cervix, unspecified
	622.11	Mild dysplasia of cervix
	622.12	Moderate dysplasia of cervix
	622.2	Leukoplakia of cervix (uteri)
	622.3	Old laceration of cervix
	622.4	Stricture and stenosis of cervix
	622.5	Incompetence of cervix
	622.6	Hypertrophic elongation of cervix
	622.7	Mucous polyp of cervix
	622.8	Other specified noninflammatory disorders of cervix
	622.9	Unspecified noninflammatory disorder of cervix
	623.5	Leukorrhea, not specified as infective

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Endometriosis	617.xx	Endometriosis
	617.0	Endometriosis of uterus
	617.1	Endometriosis of ovary
	617.2	Endometriosis of fallopian tube
	617.3	Endometriosis of pelvic peritoneum
	617.4	Endometriosis of rectovaginal septum and vagina
	617.5	Endometriosis of intestine
	617.6	Endometriosis in scar of skin
	617.8	Endometriosis of other specified sites
	617.9	Endometriosis, site unspecified
Pregnancy	V22.x	Normal pregnancy
	V23.x	Supervision of high-risk pregnancy
	V27.x	Outcome of delivery
	630–633	Ectopic and molar pregnancy
	634–639	Other pregnancy with abortive outcome
	640–649	Complications mainly related to pregnancy
	650–659	Normal delivery, and other indications for care in pregnancy, labor, and delivery
	660–669	Complications occurring mainly in the course of labor and delivery
	670–677	Complications of the puerperium
Pregnancy/delivery	V22.2	Pregnant state, incidental
	650	Normal delivery
Disorders of the uterus not elsewhere classified	621.xx	Disorders of uterus, not elsewhere classified
	621.0	Polyp of corpus uteri
	621.1	Chronic subinvolution of uterus
	621.2	Hypertrophy of uterus
	621.3	Endometrial hyperplasia
	621.30	Endometrial hyperplasia, unspecified
	621.31	Simple endometrial hyperplasia without atypia
	621.32	Complex endometrial hyperplasia without atypia
	621.33	Endometrial hyperplasia with atypia
	621.34	Benign endometrial hyperplasia
	621.35	Endometrial intraepithelial neoplasia [EIN]
	621.4	Hematometra
	621.5	Intrauterine synechiae
	621.6	Malposition of uterus

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	621.7	Chronic inversion of uterus
	621.8	Other specified disorders of uterus, not elsewhere classified
	621.9	Unspecified disorder of uterus
Genital prolapse	618.xx	Genital prolapse
	618.0	Prolapse of vaginal walls without mention of uterine prolapse
	618.00	Unspecified prolapse of vaginal walls
	618.01	Cystocele, midline
	618.02	Cystocele, lateral
	618.03	Urethrocele
	618.04	Rectocele
	618.05	Perineocele
	618.09	Other prolapse of vaginal walls without mention of uterine prolapse
	618.1	Uterine prolapse without mention of vaginal wall prolapse
	618.2	Uterovaginal prolapse, incomplete
	618.3	Uterovaginal prolapse, complete
	618.4	Uterovaginal prolapse, unspecified
	618.5	Prolapse of vaginal vault after hysterectomy
	618.6	Vaginal enterocele, congenital or acquired
	618.7	Old laceration of muscles of pelvic floor
	618.8	Other specified genital prolapse
	618.81	Incompetence or weakening of pubocervical tissue
	618.82	Incompetence or weakening of rectovaginal tissue
	618.83	Pelvic muscle wasting
	618.84	Cervical stump prolapse
	618.89	Other specified genital prolapse
	618.9	Unspecified genital prolapse
Benign neoplasm of the uterus/ovary	220	Benign neoplasm of ovary
	219	Other benign neoplasm of uterus
	219.0	Benign neoplasm of cervix uteri
	219.1	Benign neoplasm of corpus uteri
	219.8	Benign neoplasm of other specified parts of uterus
	219.9	Benign neoplasm of uterus, part unspecified
Sepsis	038.0x- 038.9x	Septicemia
	038.0	Streptococcal septicemia

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	038.1	Staphylococcal septicemia
	038.10	Staphylococcal septicemia, unspecified
	038.11	Methicillin susceptible <i>Staphylococcus aureus</i> septicemia
	038.12	Methicillin resistant <i>Staphylococcus aureus</i> septicemia
	038.19	Other staphylococcal septicemia
	038.2	Pneumococcal septicemia [<i>Streptococcus pneumoniae</i> septicemia]
	038.3	Septicemia due to anaerobes
	038.4	Septicemia due to other gram-negative organisms
	038.40	Septicemia due to gram-negative organism, unspecified
	038.41	Septicemia due to <i>hemophilus influenzae</i> [<i>H. influenzae</i>]
	038.42	Septicemia due to <i>escherichia coli</i> [<i>E. coli</i>]
	038.43	Septicemia due to <i>pseudomonas</i>
	038.44	Septicemia due to <i>serratia</i>
	038.49	Other septicemia due to gram-negative organisms
	038.8	Other specified septicemias
	038.9	Unspecified septicemia
	670.2	Puerperal sepsis
	995.91	Sepsis
	995.92	Severe sepsis
Intestinal obstructions	537.3	Other obstruction of duodenum
	560.89	Other specified intestinal obstruction
	560	Intestinal obstruction without mention of hernia
	560.0	Intussusception
	560.8	Other specified intestinal obstruction
	560.81	Intestinal or peritoneal adhesions with obstruction (postoperative) (postinfection)
	560.9	Unspecified intestinal obstruction
Peritonitis	567.xx	Peritonitis and retroperitoneal infections
	567.0	Peritonitis in infectious diseases classified elsewhere
	567.1	Pneumococcal peritonitis
	567.2	Other suppurative peritonitis
	567.21	Peritonitis (acute) generalized
	567.22	Peritoneal abscess
	567.23	Spontaneous bacterial peritonitis
	567.29	Other suppurative peritonitis

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	567.3	Retroperitoneal infections
	567.31	Psoas muscle abscess
	567.38	Other retroperitoneal abscess
	567.39	Other retroperitoneal infections
	567.8	Other specified peritonitis
	567.81	Choleperitonitis
	567.82	Sclerosing mesenteritis
	567.89	Other specified peritonitis
	567.9	Unspecified peritonitis
	098.86	Gonococcal peritonitis
	614.5	Acute or unspecified pelvic peritonitis, female
	614.7	Other chronic pelvic peritonitis, female
Spontaneous abortion	634.X	Spontaneous abortion
	634.0	Spontaneous abortion; complicated by genital tract and pelvic infection
	634.00	Spontaneous abortion, complicated by genital tract and pelvic infection, unspecified
	634.01	Spontaneous abortion, complicated by genital tract and pelvic infection, incomplete
	634.02	Spontaneous abortion, complicated by genital tract and pelvic infection, complete
	634.1	Spontaneous abortion; complicated by delayed or excessive hemorrhage
	634.10	Spontaneous abortion, complicated by delayed or excessive hemorrhage, unspecified
	634.11	Spontaneous abortion, complicated by delayed or excessive hemorrhage, incomplete
	634.12	Spontaneous abortion, complicated by delayed or excessive hemorrhage, complete
	634.2	Spontaneous abortion; complicated by damage to pelvic organs or tissues
	634.20	Spontaneous abortion, complicated by damage to pelvic organs or tissues, unspecified
	634.21	Spontaneous abortion, complicated by damage to pelvic organs or tissues, incomplete
	634.22	Spontaneous abortion, complicated by damage to pelvic organs or tissues, complete
	634.3	Spontaneous abortion; complicated by renal failure
	634.30	Spontaneous abortion, complicated by renal failure, unspecified

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634.31	Spontaneous abortion, complicated by renal failure, incomplete
634.32	Spontaneous abortion, complicated by renal failure, complete
634.4	Spontaneous abortion; complicated by metabolic disorder
634.40	Spontaneous abortion, complicated by metabolic disorder, unspecified
634.41	Spontaneous abortion, complicated by metabolic disorder, incomplete
634.42	Spontaneous abortion, complicated by metabolic disorder, complete
634.5	Spontaneous abortion; complicated by shock
634.50	Spontaneous abortion, complicated by shock, unspecified
634.51	Spontaneous abortion, complicated by shock, incomplete
634.52	Spontaneous abortion, complicated by shock, complete
634.6	Spontaneous abortion; complicated by embolism
634.60	Spontaneous abortion, complicated by embolism, unspecified
634.61	Spontaneous abortion, complicated by embolism, incomplete
634.62	Spontaneous abortion, complicated by embolism, complete
634.7	Spontaneous abortion; with other specified complications
634.70	Spontaneous abortion, with other specified complications, unspecified
634.71	Spontaneous abortion, with other specified complications, incomplete
634.72	Spontaneous abortion, with other specified complications, complete
634.8	Spontaneous abortion; with unspecified complication
634.80	Spontaneous abortion, with unspecified complication, unspecified
634.81	Spontaneous abortion, with unspecified complication, incomplete

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Page 9 of 26

	634.82	Spontaneous abortion, with unspecified complication, complete
	634.9	Spontaneous abortion; without mention of complication
	634.90	Spontaneous abortion, without mention of complication, unspecified
	634.91	Spontaneous abortion, without mention of complication, incomplete
	634.92	Spontaneous abortion, without mention of complication, complete
Therapeutic abortion	635.X	Legally induced abortion
	635.0	Legally induced abortion; complicated by genital tract and pelvic infection
	635.00	Legally induced abortion, complicated by genital tract and pelvic infection, unspecified
	635.01	Legally induced abortion, complicated by genital tract and pelvic infection, incomplete
	635.02	Legally induced abortion, complicated by genital tract and pelvic infection, complete
	635.1	Legally induced abortion; complicated by delayed or excessive hemorrhage
	635.10	Legally induced abortion, complicated by delayed or excessive hemorrhage, unspecified
	635.11	Legally induced abortion, complicated by delayed or excessive hemorrhage, incomplete
	635.12	Legally induced abortion, complicated by delayed or excessive hemorrhage, complete
	635.2	Legally induced abortion; complicated by damage to pelvic organs or tissues
	635.20	Legally induced abortion, complicated by damage to pelvic organs or tissues, unspecified
	635.21	Legally induced abortion, complicated by damage to pelvic organs or tissues, incomplete
	635.22	Legally induced abortion, complicated by damage to pelvic organs or tissues, complete
	635.3	Legally induced abortion; complicated by renal failure
	635.30	Legally induced abortion, complicated by renal failure, unspecified
	635.31	Legally induced abortion, complicated by renal failure, incomplete

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Page 10 of 26

635.32	Legally induced abortion, complicated by renal failure, complete
635.4	Legally induced abortion; complicated by metabolic disorder
635.40	Legally induced abortion, complicated by metabolic disorder, unspecified
635.41	Legally induced abortion, complicated by metabolic disorder, incomplete
635.42	Legally induced abortion, complicated by metabolic disorder, complete
635.5	Legally induced abortion; complicated by shock
635.50	Legally induced abortion, complicated by shock, unspecified
635.51	Legally induced abortion, complicated by shock, incomplete
635.52	Legally induced abortion, complicated by shock, complete
635.6	Legally induced abortion; complicated by embolism
635.60	Legally induced abortion, complicated by embolism, unspecified
635.61	Legally induced abortion, complicated by embolism, incomplete
635.62	Legally induced abortion, complicated by embolism, complete
635.7	Legally induced abortion; with other specified complications
635.70	Legally induced abortion, with other specified complications, unspecified
635.71	Legally induced abortion, with other specified complications, incomplete
635.72	Legally induced abortion, with other specified complications, complete
635.8	Legally induced abortion; with unspecified complication
635.80	Legally induced abortion, with unspecified complication, unspecified
635.81	Legally induced abortion, with unspecified complication, incomplete
635.82	Legally induced abortion, with unspecified complication, complete

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	635.9	Legally induced abortion; without mention of complication
	635.90	Legally induced abortion, without mention of complication, unspecified
	635.91	Legally induced abortion, without mention of complication, incomplete
	635.92	Legally induced abortion, without mention of complication, complete
Ectopic pregnancy	633	Ectopic pregnancy
	633.0	Abdominal pregnancy
	633.00	Abdominal pregnancy without intrauterine pregnancy
	633.01	Abdominal pregnancy with intrauterine pregnancy
	633.1	Tubal pregnancy
	633.10	Tubal pregnancy without intrauterine pregnancy
	633.11	Tubal pregnancy with intrauterine pregnancy
	633.2	Ovarian pregnancy
	633.20	Ovarian pregnancy without intrauterine pregnancy
	633.21	Ovarian pregnancy with intrauterine pregnancy
	633.8	Other ectopic pregnancy
	633.80	Other ectopic pregnancy without intrauterine pregnancy
	633.81	Other ectopic pregnancy with intrauterine pregnancy
	633.9	Unspecified ectopic pregnancy
	633.90	Unspecified ectopic pregnancy without intrauterine pregnancy
	633.91	Unspecified ectopic pregnancy with intrauterine pregnancy
Cesarean section	669.7	Cesarean delivery, without mention of indication
	654.1	Tumors of body of uterus
	654.10	Tumors of body of uterus, unspecified as to episode of care or not applicable
	654.11	Tumors of body of uterus, delivered, with or without mention of antepartum condition
	654.12	Tumors of body of uterus, delivered, with mention of postpartum complication
	654.13	Tumors of body of uterus, antepartum condition or complication
	654.14	Tumors of body of uterus, postpartum condition or complication
	654.3	Retroverted and incarcerated gravid uterus

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654.30	Retroverted and incarcerated gravid uterus, unspecified as to episode of care or not applicable
654.31	Retroverted and incarcerated gravid uterus, delivered, with mention of antepartum condition
654.32	Retroverted and incarcerated gravid uterus, delivered, with mention of postpartum complication
654.33	Retroverted and incarcerated gravid uterus, antepartum condition or complication
654.34	Retroverted and incarcerated gravid uterus, postpartum condition or complication
654.81	Congenital or acquired abnormality of vulva, delivered, with or without mention of antepartum condition
654.82	Congenital or acquired abnormality of vulva, delivered, with mention of postpartum complication
654.83	Congenital or acquired abnormality of vulva, antepartum condition or complication
654.84	Congenital or acquired abnormality of vulva, postpartum condition or complication
654.9	Abnormality of organs and soft tissues of pelvis; other and unspecified
654.90	Other and unspecified abnormality of organs and soft tissues of pelvis, unspecified as to episode of care or not applicable
654.91	Other and unspecified abnormality of organs and soft tissues of pelvis, delivered, with or without mention of antepartum condition
654.92	Other and unspecified abnormality of organs and soft tissues of pelvis, delivered, with mention of postpartum complication
654.93	Other and unspecified abnormality of organs and soft tissues of pelvis, antepartum condition or complication
654.94	Other and unspecified abnormality of organs and soft tissues of pelvis, postpartum condition or complication

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Page 13 of 26

Appendix 2. List of Procedure Codes

	CPT code	ICD9 Procedure Code	Description
Focused ultrasound ablation	0071T 0072T C9734		<p>Focused ultrasound ablation of uterine leiomyomata, including MR guidance; total leiomyomata volume less than 200 cc of tissue</p> <p>Focused ultrasound ablation of uterine leiomyomata, including MR guidance; total leiomyomata volume greater or equal to 200 cc of tissue</p> <p>Focused ultrasound ablation/therapeutic intervention, other than uterine leiomyomata, with magnetic resonance (MR) guidance</p>
Uterine artery embolization	36247 37204 S2250 37210	 68.24 68.25	<p>Selective catheter placement, arterial system; initial third order or more selective abdominal, pelvic, or lower extremity artery branch, within a vascular family</p> <p>Transcatheter occlusion or embolization (eg, for tumor destruction, to achieve hemostasis, to occlude a vascular malformation), percutaneous, any method, non-central nervous system, non-head or neck</p> <p>Uterine artery embolization for uterine fibroids</p> <p>Uterine fibroid embolization (UFE, embolization of the uterine arteries to treat uterine fibroids, leiomyomata), percutaneous approach inclusive of vascular access, vessel selection, embolization, and all radiological supervision and interpretation, intraprocedural roadmapping, and imaging guidance necessary to complete the procedure</p> <p>Uterine artery embolization [UAE] with coils</p> <p>Uterine artery embolization [UAE] without coils</p>
Hysterectomy Total abdominal hysterectomy	 58150 58152		<p>Total abdominal hysterectomy (corpus and cervix), with or without removal of tube(s), with or without removal of ovary(s)</p> <p>Total abdominal hysterectomy (corpus and cervix), with or without removal of tube(s), with or without removal of ovary(s); with colpo-urethrocystopexy (eg, Marshall-Marchetti-Krantz, Burch)</p>

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Vaginal hysterectomy	58200		Total abdominal hysterectomy, including partial vaginectomy, with para-aortic and pelvic lymph node sampling, with or without removal of tube(s), with or without removal of ovary(s)
	58953		Bilateral salpingo-oophorectomy with omentectomy, total abdominal hysterectomy and radical dissection for debulking
	58954		Bilateral salpingo-oophorectomy with omentectomy, total abdominal hysterectomy and radical dissection for debulking; with pelvic lymphadenectomy and limited para-aortic lymphadenectomy
	58956	68.4	Bilateral salpingo-oophorectomy with total omentectomy, total abdominal hysterectomy for malignancy
		68.49	Total abdominal hysterectomy Other and unspecified total abdominal hysterectomy
	58260		Vaginal hysterectomy, for uterus 250 g or less;
	58262		Vaginal hysterectomy, for uterus 250 g or less; with removal of tube(s), and/or ovary(s)
	58263		Vaginal hysterectomy, for uterus 250 g or less; with removal of tube(s), and/or ovary(s), with repair of enterocele
	58267		Vaginal hysterectomy, for uterus 250 g or less; with colpo-urethrocystopexy (Marshall-Marchetti-Krantz type, Pereyra type) with or without endoscopic control
	58270		Vaginal hysterectomy, for uterus 250 g or less; with repair of enterocele
	58275		Vaginal hysterectomy, with total or partial vaginectomy;
	58280		Vaginal hysterectomy, with total or partial vaginectomy; with repair of enterocele
	58285		Vaginal hysterectomy, radical (Schauta type operation)
	58290		Vaginal hysterectomy, for uterus greater than 250 g;
	58291		Vaginal hysterectomy, for uterus greater than 250 g; with removal of tube(s) and/or ovary(s)

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Laparoscopic/robotic	58292		Vaginal hysterectomy, for uterus greater than 250 g; with removal of tube(s) and/or ovary(s), with repair of enterocele
	58293		Vaginal hysterectomy, for uterus greater than 250 g; with colpo-urethrocystopexy (Marshall-Marchetti-Krantz type, Pereyra type) with or without endoscopic control
	58294		Vaginal hysterectomy, for uterus greater than 250 g; with repair of enterocele
		68.5	Vaginal hysterectomy
		68.59	Other and unspecified vaginal hysterectomy
	58541		Laparoscopy, surgical, supracervical hysterectomy, for uterus 250 g or less;
	58542		Laparoscopy, surgical, supracervical hysterectomy, for uterus 250 g or less; with removal of tube(s) and/or ovary(s)
	58543		Laparoscopy, surgical, supracervical hysterectomy, for uterus greater than 250 g;
	58544		Laparoscopy, surgical, supracervical hysterectomy, for uterus greater than 250 g; with removal of tube(s) and/or ovary(s)
	58550		Laparoscopy, surgical, with vaginal hysterectomy, for uterus 250 g or less;
	58552		Laparoscopy, surgical, with vaginal hysterectomy, for uterus 250 g or less; with removal of tube(s) and/or ovary(s)
	58553		Laparoscopy, surgical, with vaginal hysterectomy, for uterus greater than 250 g;
	58554		Laparoscopy, surgical, with vaginal hysterectomy, for uterus greater than 250 g; with removal of tube(s) and/or ovary(s)
	58570		Laparoscopy, surgical, with total hysterectomy, for uterus 250 g or less;
	58571		Laparoscopy, surgical, with total hysterectomy, for uterus 250 g or less; with removal of tube(s) and/or ovary(s)
	58572		Laparoscopy, surgical, with total hysterectomy, for uterus greater than 250 g;

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Subtotal hysterectomy	58573		Laparoscopy, surgical, with total hysterectomy, for uterus greater than 250 g; with removal of tube(s) and/or ovary(s)
	58578		Unlisted laparoscopy procedure, uterus
			Laparoscopic supracervical hysterectomy (subtotal hysterectomy), with or without removal of tube(s), with or without removal of ovary(s)
	S2078	68.41	Laparoscopic total abdominal hysterectomy
		68.51	Laparoscopically assisted vaginal hysterectomy (LAVH)
		68.31	Laparoscopic supracervical hysterectomy [LSH]
			Supracervical abdominal hysterectomy (subtotal hysterectomy), with or without removal of tube(s), with or without removal of ovary(s)
	58180	68.3	Subtotal abdominal hysterectomy
		68.39	Other and unspecified subtotal abdominal hysterectomy
			Radical abdominal hysterectomy, with bilateral total pelvic lymphadenectomy and para-aortic lymph node sampling (biopsy), with or without removal of tube(s), with or without removal of ovary(s)
Radical hysterectomy	58210		
			Laparoscopy, surgical, with radical hysterectomy, with bilateral total pelvic lymphadenectomy and para-aortic lymph node sampling (biopsy), with removal of tube(s) and ovary(s), if performed
	58548	68.6	Radical abdominal hysterectomy
		68.61	Laparoscopic radical abdominal hysterectomy
		68.69	Other and unspecified radical abdominal hysterectomy
		68.7	Radical vaginal hysterectomy
		68.71	Laparoscopic radical vaginal hysterectomy [LRVH]
		68.79	Other and unspecified radical vaginal hysterectomy
Myomectomy		68.9	Other and unspecified hysterectomy

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Abdominal myomectomy	58140		Myomectomy, excision of fibroid tumor(s) of uterus, 1 to 4 intramural myoma(s) with total weight of 250 g or less and/or removal of surface myomas; abdominal approach
	58146		Myomectomy, excision of fibroid tumor(s) of uterus, 5 or more intramural myomas and/or intramural myomas with total weight greater than 250 g, abdominal approach
Vaginal myomectomy	58145		Myomectomy, excision of fibroid tumor(s) of uterus, 1 to 4 intramural myoma(s) with total weight of 250 g or less and/or removal of surface myomas; vaginal approach
Laparoscopy myomectomy	58545		Laparoscopy, surgical, myomectomy, excision; 1 to 4 intramural myomas with total weight of 250 g or less and/or removal of surface myomas
	58546		Laparoscopy, surgical, myomectomy, excision; 5 or more intramural myomas and/or intramural myomas with total weight greater than 250 g
	58551		This description expired on 2003, replaced by 58545 and 58546
Subsequent procedures (Potential Complications)		68.29	Other excision or destruction of lesion of uterus
		42.x	Operations on esophagus
		43.x	Incision and excision of stomach
		44.x	Other operations on stomach
		45.x	Incision, excision, and anastomosis of intestine
		46.x	Other operations on intestine
		47.x	Operations on appendix
		48.x	Operations on rectum, rectosigmoid and perirectal tissue
		49.x	Operations on anus
		50.x	Operations on liver

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	51.x	Operations on gallbladder and biliary tract
	52.x	Operations on pancreas
	54.x	Other operations on abdominal region
	55.x	Operations on kidney
	56.x	Operations on ureter
	57.x	Operations on urinary bladder
	58.x	Operations on urethra
	59.x	Other operations on urinary tract
	65.x	Operations on ovary
	66.x	Operations on fallopian tubes
	68.x	Other incision and excision of uterus
	69.x	Other operations on uterus and supporting structures

Appendix 3. Patient Baseline Characteristics Including the Magnetic Resonance–Guided, Focused Ultrasound Surgery Cohort, Stratified by Index Procedure (N=135,522)

	MRgFUS	Myomectomy	UAE	Hysterectomy	Overall	p-value
Patients, N (%)	47 (0.0%)	19,965 (14.7%)	4,186 (3.1%)	111,324 (82.2%)	135,522	
Age, years, mean (SD)	43.0 (5.4)	38.4 (6.6)	44.0 (5.4)	44.1 (5.5)	43.2 (6.0)	<0.01
Race, N (%)						<0.01
Asian	0 (0.0%)	714 (3.6%)	106 (2.5%)	1762 (1.6%)	2582 (1.9%)	
Black	4 (8.5%)	2744 (13.7%)	823 (19.7%)	9528 (8.6%)	13099 (9.7%)	
Hispanic	3 (6.4%)	1564 (7.8%)	224 (5.4%)	8203 (7.4%)	9994 (7.4%)	
White	21 (44.7%)	8443 (42.3%)	1702 (40.7%)	56747 (51.0%)	66913 (49.4%)	
Unknown	19 (40.4%)	6500 (32.6%)	1331 (31.8%)	35084 (31.5%)	42934 (31.7%)	
Income level, N (%)						<0.01
< \$40,000	5 (10.6%)	2234 (11.2%)	490 (11.7%)	12743 (11.4%)	15472 (11.4%)	
\$40,000 – \$49,999	0 (0.0%)	1695 (8.5%)	349 (8.3%)	11226 (10.1%)	13270 (9.8%)	
\$50,000 – \$59,999	4 (8.5%)	1621 (8.1%)	374 (8.9%)	10575 (9.5%)	12574 (9.3%)	
\$60,000 – \$74,999	7 (14.9%)	2119 (10.6%)	430 (10.3%)	12676 (11.4%)	15232 (11.2%)	
\$75,000 – \$99,999	7 (14.9%)	2724 (13.6%)	562 (13.4%)	15048 (13.5%)	18341 (13.5%)	
≥ \$100,000	6 (12.8%)	3198 (16.0%)	687 (16.4%)	14749 (13.2%)	18640 (13.8%)	
Unknown	18 (38.3%)	6374 (31.9%)	1294 (30.9%)	34307 (30.8%)	41993 (31.0%)	
Region, N (%)						<0.01
Midwest	17 (36.2%)	3516 (17.6%)	891 (21.3%)	27599 (24.8%)	32023 (23.6%)	
Northeast	4 (8.5%)	4538 (22.7%)	897 (21.4%)	9759 (8.8%)	15198 (11.2%)	
South	19 (40.4%)	9301 (46.6%)	1924 (46.0%)	57046 (51.2%)	68290 (50.4%)	
West	7 (14.9%)	2561 (12.8%)	467 (11.2%)	16565 (14.9%)	19600 (14.5%)	
Unknown	0 (0.0%)	49 (0.2%)	7 (0.2%)	355 (0.3%)	411 (0.3%)	

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Charlson Index at baseline, N (%)						<0.01
0	37 (78.7%)	15031 (75.3%)	2676 (63.9%)	68990 (62.0%)	86734 (64.0%)	
1	8 (17.0%)	3539 (17.7%)	1026 (24.5%)	28992 (26.0%)	33565 (24.8%)	
≥2	2 (4.3%)	1395 (7.0%)	484 (11.6%)	13342 (12.0%)	15223 (11.2%)	
Baseline Comorbidities, N (%)						
Pelvic pain	25 (53.2%)	13759 (68.9%)	2636 (63.0%)	71317 (64.1%)	87737 (64.7%)	<0.01
Anemias	12 (25.5%)	4416 (22.1%)	1470 (35.1%)	24601 (22.1%)	30499 (22.5%)	<0.01
Inflammatory diseases	1 (2.1%)	1058 (5.3%)	89 (2.1%)	5165 (4.6%)	6313 (4.7%)	<0.01
Noninflammatory diseases	9 (19.1%)	6370 (31.9%)	1164 (27.8%)	35362 (31.8%)	42905 (31.7%)	<0.01
Endometriosis	2 (4.3%)	1639 (8.2%)	161 (3.8%)	10634 (9.6%)	12436 (9.2%)	<0.01
Benign neoplasm of the uterus/ovary	1 (2.1%)	674 (3.4%)	132 (3.2%)	5258 (4.7%)	6065 (4.5%)	<0.01
Disorders of uterus	12 (25.5%)	4201 (21.0%)	1097 (26.2%)	25051 (22.5%)	30361 (22.4%)	<0.01
Urinary problems	14 (29.8%)	3597 (18.0%)	1045 (25.0%)	23624 (21.2%)	28280 (20.9%)	<0.01
Constipation or gas	4 (8.5%)	1891 (9.5%)	448 (10.7%)	9654 (8.7%)	11997 (8.9%)	<0.01
Dyspareunia	3 (6.4%)	1094 (5.5%)	158 (3.8%)	7178 (6.4%)	8433 (6.2%)	<0.01
Pregnancy	0 (0.0%)	2567 (12.9%)	195 (4.7%)	2999 (2.7%)	5761 (4.3%)	<0.01
Baseline Health Care Utilization, Mean (SD)						
UF-Related Outpatient	4.2 (3.4)	2.5 (2.7)	3.5 (2.4)	1.5 (1.8)	1.7 (2.0)	<0.01
UF-Related ED & Inpatient	0.1 (0.3)	0.1 (0.4)	0.1 (0.4)	0.1 (0.3)	0.1 (0.3)	<0.01
Any Outpatient	15.5 (11.2)	14.9 (12.8)	15.0 (13.0)	14.0 (12.1)	14.2 (12.2)	<0.01
Any ED & Inpatient	0.4 (0.6)	0.5 (1.1)	0.6 (1.2)	0.6 (1.4)	0.6 (1.3)	<0.01

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Follow-up time (# years), Median (IQR)	2.7 (1.2-6.1)	2.6 (1.3-4.8)	2.6 (1.4-4.6)	2.6 (1.3-4.8)	2.6 (1.3-4.8)	0.34
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IQR: Interquartile Range.

Appendix 4. Subsequent Leiomyoma Procedures (Including the Magnetic Resonance–Guided, Focused Ultrasound Surgery Cohort), Stratified by Index Procedure (N=24,198)

	MRgFUS (N=47)	Myomectomy (N=19965)	UAE (N=4186)	Overall (N=24,198)	p-value
Subsequent leiomyoma procedure, N (%)	21 (44.7%)	2648 (13.3%)	689 (16.5%)	3358 (13.9%)	0.01
Leiomyoma procedure type¹ among those with a second procedure	n=21	n=2648	n=689	n=3358	<0.01
MRgFUS, n (%)	4 (19.0%)	0 (0.0%)	0 (0.0%)	4 (0.1%)	
Myomectomy, n (%)	5 (23.8%)	866 (32.7%)	109 (15.8%)	980 (29.2%)	
UAE, n (%)	1 (4.8%)	132 (5.0%)	91 (13.2%)	224 (6.7%)	
Hysterectomy, n (%)	11 (52.4%)	1650 (62.3%)	489 (71.0%)	2150 (64.0%)	
Duration² between index leiomyoma procedure and any subsequent leiomyoma procedure (# years), Mean (SD)	1.1 (0.7-2.2)	1.6 (0.6-3.2)	1.3 (0.7-2.7)	1.5 (0.6-3.1)	0.04
Subsequent hysterectomy³, N (%)	13 (27.7%)	1773 (8.9%)	530 (12.7%)	2316 (9.6%)	<0.01
Duration between index leiomyoma procedure and subsequent hysterectomy (# years), Mean(SD)	2.1 (0.9-2.9)	1.8 (0.7-3.6)	1.6 (0.8-2.9)	1.8 (0.7-3.4)	0.27

¹ Leiomyoma procedure types were based on the type of the second procedure among those who had a subsequent leiomyoma procedure(s).

²Duration refers to the duration between the index leiomyoma procedure and the second leiomyoma procedure.

³ Hysterectomy here includes both second procedures and any subsequent procedures that were hysterectomies.

Appendix 5. Five-Year Health Care Utilization, Including Magnetic Resonance–Guided, Focused Ultrasound Surgery Cohort (N=31,294), Median (IQR)

	MRgFUS (N=17)	Myomectomy (N=4,684)	UAE (N=910)	Hysterectomy (N=25,683)	p-value
Leiomyoma-Related Outpatient Visits	7 (4-13)	1 (0-4)	4 (2-6)	0 (0-0)	<0.01
Leiomyoma-Related Emergency Department and Inpatient Visits	0 (0-1)	0 (0-0)	0 (0-0)	0 (0-0)	<0.01
All-Cause Outpatient Visits	45 (26-73)	53 (32-86)	47 (28-76)	46 (27-79)	<0.01
All-Cause Emergency Department and Inpatient Visits	1 (1-3)	1 (0-3)	1 (0-2)	1 (0-2)	<0.01

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Appendix 6. Five-Year Health Care Utilization Between Myomectomy and UAE Cohorts After Propensity Score Matching (N=1,592)

	Myomectomy (N=796)	UAE (N=796)	p-value
Leiomyoma-Related Outpatient Services	2.7 (3.8)	4.6 (4.3)	<0.001
Leiomyoma-Related ED and Inpatient Visits	0.2 (0.4)	0.3 (0.6)	<0.001
All-Cause Outpatient Services	68.6 (54.9)	62.5 (55.4)	0.009
All-Cause ED and Inpatient Visits	1.8 (2.7)	2.0 (4.2)	0.642

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Appendix 7. Five-Year Health care Utilization Between Hysterectomy Cohort and Uterine-Sparing Treatment Cohort That Received Hysterectomy During Follow-up (N=2,124)

	Hysterectomy as index procedure (N=1062)	Hysterectomy during follow up (N=1062)	p-value
Leiomyoma-Related Outpatient Services	0.2 (0.9)	4.2 (4.2)	<0.001
Leiomyoma-Related Emergency Department and Inpatient Visits	0.0 (0.1)	0.6 (0.7)	<0.001
All-Cause Outpatient Services	59.2 (55.9)	72.0 (57.2)	<0.001
All-Cause Emergency Department and Inpatient Visits	2.4 (4.4)	2.8 (4.4)	<0.001

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