

Diagnosis and Treatment of Infertility

Disclaimer

Clinical guidelines are developed and adopted to establish evidence-based clinical criteria for utilization management decisions. Clinical guidelines are applicable according to policy and plan type. The Plan may delegate utilization management decisions of certain services to third parties who may develop and adopt their own clinical criteria.

Coverage of services is subject to the terms, conditions, and limitations of a member's policy, as well as applicable state and federal law. Clinical guidelines are also subject to in-force criteria such as the Centers for Medicare & Medicaid Services (CMS) national coverage determination (NCD) or local coverage determination (LCD) for Medicare Advantage plans. Please refer to the member's policy documents (e.g., Certificate/Evidence of Coverage, Schedule of Benefits, Plan Formulary) or contact the Plan to confirm coverage.

Summary

The Plan considers the diagnosis and treatment of infertility medically necessary when the cause of infertility is a result of anatomical, acquired disease, inherited disease or other conditions resulting in an inability to conceive or establish pregnancy. Basic services (e.g., diagnostic) to determine the cause of infertility may include semen analysis, serum hormone levels, hysterosalpingogram, and evaluation of ovulatory function. If basic infertility services do not result in a pregnancy, comprehensive services (e.g., treatment) may include surgical and non-surgical treatments (e.g., ovulation induction, intrauterine insemination).

Note: Services for infertility may include diagnosis, treatment, or fertility preservation, and coverage is subject to the terms, conditions, limitations of a member's policy and applicable state and federal law. Advanced reproductive technologies such as in vitro fertilization (IVF), gamete intrafallopian tube transfers (GIFT), zygote intrafallopian tube transfers (ZIFT), or donor services (oocyte, ovum, sperm) are also subject to the member's benefit plan for eligibility of coverage. Furthermore, infertility medications and delivery (e.g., pumps) may be subject to the member's pharmacy benefit plan.

Note: For sex reassignment surgery among transgender members who have iatrogenic infertility, coverage for fertility preservation (freezing egg, sperm) and/or other infertility services is subject to the member's policy and applicable state and federal law. Please review The Plan's Clinical Guideline: Sex Reassignment Surgery (Gender Affirmation Surgery) and Non-Surgical Services (CG017) for sex reassignment procedures for gender dysphoria.

Definitions

“Infertility” refers to the failure to establish a successful pregnancy after 12 months/cycles for women (biological female) before 35 years of age, or after 6 months/cycles for women greater or equal to 35 years of age with unprotected heterosexual intercourse or therapeutic donor insemination. Infertility may be caused by disease, dysfunction, or malformation.

- Primary infertility refers to couples who have never established a pregnancy.
- Secondary infertility refers to couples who are experiencing infertility after having a history of a live birth

“Iatrogenic Infertility” refers to transient or permanent infertility caused by a necessary medical intervention such as chemotherapy, pelvic radiotherapy, gonadotoxic therapies, or the surgical removal of the reproductive organs for the treatment of disease or gender dysphoria.

“In Vitro Fertilization” (IVF) refers to a series of procedures from extracting egg and sperm from biological parents (or donors) to fertilize mature eggs with sperm in a lab. Then the fertilized egg/s (embryo) are transferred into the uterus of the biological mother, gestational carrier (no genetic connection to the embryo), or traditional surrogate (own egg is fertilized from the intended father to give birth. Or these embryos can be cryopreserved (frozen) for future use.

“Cryopreservation” for fertility preservation refers to freezing eggs (oocytes), sperm, or embryos at a storage bank for future reproduction.

“Pregnancy” refers to clinical pregnancy documented by ultrasonography, biochemical or histopathologic examination.

“Recurrent Pregnancy Loss” refers to two or more failed pregnancies, or miscarriages, and is not considered infertility.

“Therapeutic Donor Insemination” refers to the process of inserting laboratory-processed sperm into the reproductive tract of a woman from a man who is not her intimate sexual partner for the purpose of initiating a pregnancy.

Clinical Indications

General Clinical Indications

The Plan considers infertility services medically necessary when the following criteria are met:

1. The requested service is covered per the member’s plan benefit policy; *and*
2. The requested service is NOT associated with the reversal of voluntary sterilization for male (e.g., vasectomy) or female (e.g., tubal ligation) for primary purpose of preventing pregnancy; *and*
3. The requested infertility service is NOT for a member who has a history of voluntary sterilization (biological male or female) or completed a reversal procedure for sterilization; *and*

4. Infertility services are not being requested beyond 10 weeks of pregnancy; *and*
5. Infertility is the result of disease, dysfunction, iatrogenic infertility (see *Definitions* above) , or malformation.
 - a. Infertility is not defined to include the inability to conceive due to lack of a sex partner; *and*
6. For ages <35, after trying to conceive after 12 months (including unprotected heterosexual intercourse and/or therapeutic donor insemination); *and/or*
7. For ages ≥35, after trying to conceive after 6 months (including unprotected heterosexual intercourse and/or therapeutic donor insemination); *and*
8. For a biological female ≥ 40 years old (who has not yet reached a diagnosis of natural menopause as reflected by the permanent cessation of menses for at least 12 months), more immediate evaluation and treatment may be medically necessary; *and*
9. If the member already has a documented condition to cause infertility, immediate evaluation is warranted. In the scenarios that there are reversible causes of infertility that can be medically managed, the member must have maximized the therapies and treatment (except for a history of voluntary sterilization); *and*
10. For comprehensive infertility services, clinical documentation indicates that basic fertility services did not result in a pregnancy; *and*
11. For assisted reproductive technology, clinical documentation indicates that comprehensive fertility services did not result in a pregnancy and MCG A-0504 criteria is met; *and*
12. For fertility preservation due to iatrogenic infertility, MCG A-0504 criteria is met. Fertility preservation related to sex reassignment surgery is subject to plan benefits. For fertility preservation services due to iatrogenic infertility associated with sex reassignment surgery, the General Clinical Indications criteria and Gonadectomy and Hysterectomy section criteria must also be met in Sex Reassignment Surgery (Gender Affirmation Surgery) and Non-Surgical Services (CG017).

California State and New York State Lines of Business

- Same-sex couples, non-binary, and transgender individuals are able to receive infertility services if medically appropriate.
- Oscar does not discriminate based on a member's partnership status or sexual orientation.
- Notwithstanding, all members must meet the definition of infertility and the General Clinical Indications to meet medical necessity for infertility services.

Basic Infertility Services (Diagnosis)

Basic female infertility services may include:

- Initial Evaluation: History & Physical Exam
- Laboratory: Chlamydia Trachomatis screening, Rubella serology, viral status screening (HIV, Hepatitis B, Hepatitis C), TSH, Prolactin, FSH, Estradiol, Progesterone, Luteinizing Hormone, human chorionic gonadotropin, androgens (if there is evidence of hyperandrogenism), anti-mullerian hormone, ovarian reserve testing, Genetic karyotyping (Chromosome analysis)

- Imaging: Sonohysterography (Saline Infusion Sonography), Pelvic or Transvaginal Ultrasonography, Hysterosalpingography, Hysteroscopy, CT or MR imaging of sella turcica if prolactin is elevated
- Diagnostic Procedures: Laparoscopy and chromotubation

Basic male infertility services may include:

- Initial Evaluation: History & Physical Exam
- Laboratory: Chlamydia Trachomatis screening, viral status screening (HIV, Hepatitis B, Hepatitis C), TSH, FSH, LH, PRL, Total and free Testosterone (T), estrogens, Genetic karyotyping (Chromosome analysis), Y-Chromosome Microdeletions
- Post-Ejaculatory Urinalysis
- Imaging: CT or MR imaging of sella turcica if prolactin is elevated, Transrectal or Scrotal Ultrasonography, Vasography or Venography
- Tissue Analysis or Testis Biopsy
- Scrotal exploration
- Semen & Sperm Analysis
 - Quantification of Leukocytes in Semen
 - Sperm concentration and motility
 - Seminal fructose
 - Cultures of prostatic secretion, semen, urine

Comprehensive Infertility Services (Treatment)

Comprehensive female infertility services may include (please check the member's plan benefit):

- Non-Surgical Treatments
 - Endocrine management
 - Gonadotropins, Gonadotropin releasing hormone (GnRH), Gonadotropin releasing hormone (GnRH) antagonists, Corticosteroids, Estrogens, Progestins, Aromatase inhibitors, Lutropin alfa in combination with human FSH
 - Hepatitis B vaccination of partners of people with hepatitis B
 - Rubella vaccination of women susceptible to rubella
 - Oral clomiphene citrate, tamoxifen, or letrozole for ovulation induction (please check member's pharmacy plan benefit)
 - Metformin and/or letrozole for women with anovulatory disorders such as polycystic ovarian syndrome (please check member's pharmacy plan benefit)
 - Prolactin inhibitors for women with hyperprolactinemia
 - Artificial/intrauterine insemination [IUI] (including sperm washing)
 - Donor insemination for **ONE** of the following indications:
 - Obstructive or non-obstructive azoospermia; *or*
 - Severe deficits in semen quality in couples who do not wish to undergo intracytoplasmic sperm injection (ICSI); *or*
 - Severe rhesus isoimmunization; *or*

- High risk of transmitting a genetic disorder or infectious disease (such as HIV) in the male partner to the offspring.
- Surgery and Imaging, when MCG criteria is met:
 - Hysteroscopic adhesiolysis for women with amenorrhea and intrauterine adhesions
 - Hysteroscopic or fluoroscopic tubal cannulation (salpingostomy, fimbrioplasty), selective salpingography plus tubal catheterization, or transcervical balloon tuboplasty for women with proximal tubal obstruction (except for a history of voluntary sterilization)
 - Laparoscopy for treatment of pelvic pathology
 - Open or laparoscopic resection, vaporization, or fulguration of endometriosis implants plus adhesiolysis in women with endometriosis
 - Ovarian wedge resection or ovarian drilling for women with polycystic ovarian syndrome who have not responded to clomiphene citrate and comparable estrogen modulators such as letrozole
 - Removal of myomas, uterine septa, cysts, ovarian tumors, polyps, hydrosalpinx
 - Surgical tubal reconstruction (unilateral or bilateral tubal microsurgery, laparoscopic tubal surgery, tuboplasty and tubal anastomosis), except in the case of prior tubal sterilization

Comprehensive male infertility services may include (please check the member's plan benefit):

- Non-Surgical Treatments
 - Non-parenteral (oral) endocrine management is subject to plan benefits:
 - Androgens (e.g., testosterone) for men with documented androgen deficiency
 - Anti-estrogens (e.g., tamoxifen) for men with elevated estrogen levels
 - Selective estrogen receptor modulators (SERMs) and/or aromatase inhibitors (AIs) for men with documented testosterone deficiency
 - Corticosteroids (e.g., dexamethasone, prednisone)
 - Prolactin inhibitors (dopamine agonists e.g., bromocriptine, cabergoline) for men with hyperprolactinemia
 - Thyroid hormone replacement for men with thyroid deficiency
 - Antibiotics for men with an identified infection (note: intra-prostatic antibiotic injection is considered experimental and investigational)
 - Injectable parenteral (subcutaneous/infusion pump) endocrine management is subject to plan benefits
 - For men with primary or secondary hypogonadotropic hypogonadism that is not due to primary testicular failure:
 - Human chorionic gonadotropins (hCG)
 - Human menopausal gonadotropins (hMG) (menotropins)
 - Gonadotropin releasing hormone (GnRH) (luteinizing hormone releasing hormone (LHRH)), by intermittent subcutaneous injections or by GnRH infusion pump

- Recombinant follitropin products (recombinant FSH) (e.g., follitropin alfa; follitropin beta)
 - Human chorionic gonadotropins (hCG) for men with prepubertal cryptorchidism not due to anatomic obstruction.
 - Electroejaculation for diabetic neuropathy, prior retroperitoneal surgery or spinal cord injury
- Surgery and Imaging, when MCG criteria are met:
 - Varicocelectomy (spermatic vein ligation):
 - For men with palpable varicocele(s), infertility, and abnormal semen parameters
 - Not medically necessary for men with azoospermia
 - Not medically necessary for non-palpable varicocele or those detected solely by imaging
 - Spermatocelectomy and hydrocelectomy
 - Surgical repair of vas deferens (e.g., vasovasostomy)
 - Except when done for the reversal of a prior voluntary sterilization procedure such as vasectomy
 - Surgical correction of epididymal blockage for men with obstructive azoospermia, including:
 - Epididymectomy
 - Epididymovasostomy
 - Excision of epididymal tumors and cysts
 - Epididymostomy
 - Transurethral resection of ejaculatory ducts (TURED) for obstruction of ejaculatory ducts
 - Orchiopexy
 - For retrograde ejaculation the following is subject to plan benefits:
 - Alpha sympathomimetic agents (for retrograde ejaculation)
 - Alkalinization of the urine with or without ureteral catheterization
 - Induced ejaculation (such as using sympathomimetics, vibratory stimulation, and/or electroejaculation)
 - Surgical sperm retrieval (see below)
 - For impotence treatments, see the Plan Clinical Guideline: Erectile Dysfunction (CG037).
 - Sperm retrieval procedures for men with aspermia or azoospermia (except for members seeking treatment associated with reversal of voluntary sterilization, e.g., vasectomy):
 - Testicular sperm extraction (TESE)
 - Microsurgical epididymal sperm aspiration (MESA)
 - Testicular sperm aspiration (TESA)
 - Testicular fine needle aspiration (TEFNA)
 - Percutaneous epididymal sperm aspiration (PESA)
 - Vasal sperm aspiration
 - Seminal vesicle sperm aspiration

Advanced Reproductive Technologies

Member meets General Criteria above and MCG A-0504 criteria is met. Advanced reproductive technologies may include:

- In vitro fertilization (IVF)
- Gamete intrafallopian tube transfers (GIFT)
- Zygote intrafallopian tube transfers (ZIFT)
- Donor services (oocyte, ovum, sperm)

Fertility Preservation

Fertility preservation is subject to the member's plan benefit. The member meets medical necessity when the General Criteria above is met AND one of the below:

1. MCG A-0504 criteria is met; *or*
2. A member has a medical procedure/treatment that will lead to iatrogenic infertility.

Fertility preservation may include:

- Cryopreservation and storage of the following:
 - Ejaculated or testicular sperm
 - Embryo, with or without ovarian stimulation
 - Mature oocytes
 - Ovarian tissue for prepubertal patients or when there is not time for ovarian stimulation
- Gonadotropin releasing hormone (GnRH) agonists for patients with breast cancer and potentially other cancers for the purpose of protection from ovarian insufficiency
- Ovarian transposition (oophoropexy) for patients undergoing pelvic radiation
- Radiation (gonadal) shielding
- Cervicectomy/trachelectomy for patients with early stage (IA2 or small IB1) cervical adenocarcinoma
- Laparoscopic cystectomy for patients with ovarian endometriomas or early stage ovarian cancer

Experimental or Investigational / Not Medically Necessary

Infertility service requests for members 40 years or older who have a diagnosis of natural menopause (permanent cessation of menses for at least 12 months) are considered NOT medically necessary.

Services or procedures considered experimental, investigational, or unproven are not covered, including but not limited to:

- Acrosome reaction test
- Acupuncture
- Bariatric surgery
- Comet assay
- Computer-assisted sperm analysis (CASA)/computer-assisted sperm motion analysis
- Cryopreservation, storage, and thawing of immature oocytes

- Cryopreservation, storage, and thawing of testicular tissue
- Dehydroepiandrosterone (DHEA)
- Direct intra-peritoneal insemination, fallopian tube sperm transfusion, intra-follicular insemination, and the use of sperm precursors
- Double IUI (intrauterine insemination)
- Drainage of ovarian cyst, when billed for egg retrieval
- EmbryoGlue
- Endometrial receptivity testing, uterine receptivity testing
- Fine needle aspiration ("mapping") of testes
- FSH manipulation of women with elevated FSH levels
- Growth hormone (GH) and growth hormone antagonists
- Hemizona assay
- Hyaluronan binding assay
- Hypoosmotic swelling test
- Intravenous immunoglobulins
- In-vitro maturation (IVM) of oocytes
- In-vitro testing of sperm penetration
- Leukocyte immunization (immunizing the female partner with the male partner's leukocytes)
- Microdissection of the zona
- Natural killer (NK) cell measurement
- Partial zonal dissection (PZD)
- Reactive oxygen species (ROS) test
- Sonohysterosalpingography or saline hysterosalpingography for tubal occlusion
- Sperm chromatin assay
- Sperm DNA condensation test
- Sperm DNA fragmentation assay
- Sperm function tests
- Sperm nucleus maturation
- Subzonal sperm insertion (SUZI)
- TUNEL assay
- Uterine Transplant

Applicable Billing Codes

Codes considered medically necessary if clinical criteria are met:

Infertility Services	
<i>Code</i>	<i>Description</i>
49203	Excision or destruction, open, intra-abdominal tumors, cysts or endometriomas, 1 or more peritoneal, mesenteric, or retroperitoneal primary or secondary tumors; largest tumor 5 cm diameter or less

49204	Excision or destruction, open, intra-abdominal tumors, cysts or endometriomas, 1 or more peritoneal, mesenteric, or retroperitoneal primary or secondary tumors; largest tumor 5.1-10.0 cm diameter
49205	Excision or destruction, open, intra-abdominal tumors, cysts or endometriomas, 1 or more peritoneal, mesenteric, or retroperitoneal primary or secondary tumors; largest tumor greater than 10.0 cm diameter
49320	Laparoscopy, abdomen, peritoneum, and omentum, diagnostic, with or without collection of specimen(s) by brushing or washing (separate procedure)
49321	Laparoscopy, surgical; with biopsy (single or multiple)
49322	Laparoscopy, surgical; with aspiration of cavity or cyst (eg, ovarian cyst) (single or multiple)
52402	Cystourethroscopy with transurethral resection or incision of ejaculatory ducts
54500	Biopsy of testis, needle (separate procedure)
54505	Biopsy of testis, incisional (separate procedure)
54640	Orchiopexy, inguinal or scrotal approach
54650	Orchiopexy, abdominal approach, for intra-abdominal testis (eg, Fowler-Stephens)
54692	Laparoscopy, surgical; orchiopexy for intra-abdominal testis
54800	Biopsy of epididymis, needle
54830	Excision of local lesion of epididymis
54840	Excision of spermatocele, with or without epididymectomy
54860	Epididymectomy; unilateral
54865	Exploration of epididymis, with or without biopsy
54900	Epididymovasostomy, anastomosis of epididymis to vas deferens; unilateral
54901	Epididymovasostomy, anastomosis of epididymis to vas deferens; bilateral
55000	Puncture aspiration of hydrocele, tunica vaginalis, with or without injection of medication
55040	Excision of hydrocele; unilateral
55041	Excision of hydrocele; bilateral
55110	Scrotal exploration
55300	Vasotomy for vasograms, seminal vesiculograms, or epididymograms, unilateral or bilateral

55400	Vasovasostomy, vasovasorrhaphy
55500	Excision of hydrocele of spermatic cord, unilateral (separate procedure)
55530	Vasotomy for vasograms, seminal vesiculograms, or epididymograms, unilateral or bilateral
55540	Vasovasostomy, vasovasorrhaphy
55870	Electroejaculation
57530	Trachelectomy (cervicectomy), amputation of cervix (separate procedure)
58925	Ovarian cystectomy, unilateral or bilateral
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
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
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
58321	Artificial insemination; Intra-cervical
58322	Artificial insemination; intra-uterine
58323	Sperm washing for artificial insemination
58340	Catheterization and introduction of saline or contrast material for saline infusion sonohysterography (SIS) or hysterosalpingography
58345	Transcervical introduction of fallopian tube catheter for diagnosis and/or re-establishing patency (any method), with or without hysterosalpingography
58350	Chromotubation of oviduct, including materials
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
58555	Hysteroscopy, diagnostic (separate procedure)
58558	Hysteroscopy, surgical; with sampling (biopsy) of endometrium and/or polypectomy, with or without D & C
58559	Hysteroscopy, surgical; with lysis of intrauterine adhesions (any method)

58560	Hysteroscopy, surgical; with division or resection of intrauterine septum (any method)
58561	Hysteroscopy, surgical; with removal of leiomyomata
58562	Hysteroscopy, surgical; with removal of impacted foreign body
58563	Hysteroscopy, surgical; with endometrial ablation (eg, endometrial resection, electrosurgical ablation, thermoablation)
58575	Laparoscopy, surgical, total hysterectomy for resection of malignancy (tumor debulking), with omentectomy including salpingo-oophorectomy, unilateral or bilateral, when performed
58660	Laparoscopy, surgical; with lysis of adhesions (salpingolysis, ovariolysis) (separate procedure)
58661	Laparoscopy, surgical; with removal of adnexal structures (partial or total oophorectomy and/or salpingectomy)
58662	Laparoscopy, surgical; with fulguration or excision of lesions of the ovary, pelvic viscera, or peritoneal surface by any method
58672	Laparoscopy, surgical; with fimbrioplasty
58673	Laparoscopy, surgical; with salpingostomy (salpingoneostomy)
58700	Salpingectomy, complete or partial, unilateral or bilateral (separate procedure)
58720	Salpingo-oophorectomy, complete or partial, unilateral or bilateral (separate procedure)
58740	Lysis of adhesions (salpingolysis, ovariolysis)
58750	Tubotubal anastomosis
58752	Tubouterine implantation
58760	Fimbrioplasty
58770	Salpingostomy (salpingoneostomy)
58800	Drainage of ovarian cyst(s), unilateral or bilateral (separate procedure); vaginal approach
58805	Drainage of ovarian cyst(s), unilateral or bilateral (separate procedure); abdominal approach
58900	Biopsy of ovary, unilateral or bilateral (separate procedure)
58920	Wedge resection or bisection of ovary, unilateral or bilateral
58970	Follicle puncture for oocyte retrieval, any method

58974	Embryo Transfer, Intrauterine
58976	Gamete, zygote, or embryo intrafallopian transfer, any method
70480	Computed tomography, orbit, sella, or posterior fossa or outer, middle, or inner ear; without contrast material
70481	Computed tomography, orbit, sella, or posterior fossa or outer, middle, or inner ear; with contrast material(s)
70482	Computed tomography, orbit, sella, or posterior fossa or outer, middle, or inner ear; without contrast material, followed by contrast material(s) and further sections
70551	Magnetic resonance (eg, proton) imaging, brain (including brain stem); without contrast material
70552	Magnetic resonance (eg, proton) imaging, brain (including brain stem); with contrast material(s)
70553	Magnetic resonance (eg, proton) imaging, brain (including brain stem); without contrast material, followed by contrast material(s) and further sequences
74440	Vasography, vesiculography, or epididymography, radiological supervision and interpretation
74740	Hysterosalpingography, radiological supervision and interpretation
76830	Ultrasound, transvaginal
76831	Saline infusion sonohysterography (SIS), including color flow Doppler, when performed
76856	Ultrasound, pelvic (nonobstetric), real time with image documentation; complete
76870	Ultrasound, scrotum and contents
76872	Ultrasound, transrectal
80400	ACTH stimulation panel;for adrenal insufficiency This panel must include the following:Cortisol (82533 x 2)
80402	ACTH stimulation panel;for 21 hydroxylase deficiency This panel must include the following:Cortisol (82533 x 2)17 hydroxyprogesterone (83498 x 2)
80406	ACTH stimulation panel;for 3 beta-hydroxydehydrogenase deficiency This panel must include the following:Cortisol (82533 x 2)17 hydroxypregnenolone (84143 x 2)
80408	Aldosterone suppression evaluation panel (eg, saline infusion) This panel must include the following:Aldosterone (82088 x 2)Renin (84244 x 2)
80410	Calcitonin stimulation panel (eg, calcium, pentagastrin) This panel must include the following:Calcitonin (82308 x 3)

80412	Corticotropin releasing hormone (CRH) stimulation panel This panel must include the following:Cortisol (82533 x 6)Adrenocorticotropin hormone (ACTH) (82024 x 6)
80414	Chorionic gonadotropin stimulation panel;testosterone response This panel must include the following:Testosterone (84403 x 2 on 3 pooled blood samples)
80415	Chorionic gonadotropin stimulation panel;estradiol response This panel must include the following:Estradiol, total (82670 x 2 on 3 pooled blood samples)
80416	Renal vein renin stimulation panel (eg, captopril) This panel must include the following:Renin (84244 x 6)
80417	Peripheral vein renin stimulation panel (eg, captopril) This panel must include the following:Renin (84244 x 2)
80418	Combined rapid anterior pituitary evaluation panel This panel must include the following:Adrenocorticotropin hormone (ACTH) (82024 x 4)Luteinizing hormone (LH) (83002 x 4)Follicle stimulating hormone (FSH) (83001 x 4)Prolactin (84146 x 4)Human growth hormone (HGH) (83003 x 4)Cortisol (82533 x 4)Thyroid stimulating hormone (TSH) (84443 x 4)
80420	Dexamethasone suppression panel, 48 hour This panel must include the following:Free cortisol, urine (82530 x 2)Cortisol (82533 x 2)Volume measurement for timed collection (81050 x 2)
80422	Glucagon tolerance panel;for insulinoma This panel must include the following:Glucose (82947 x 3)Insulin (83525 x 3)
80424	Glucagon tolerance panel;for pheochromocytoma This panel must include the following:Catecholamines, fractionated (82384 x 2)
80426	Gonadotropin releasing hormone stimulation panel This panel must include the following: Follicle stimulating hormone (FSH) (83001 x 4) Luteinizing hormone (LH) (83002 x 4)
82670	Estradiol; total
82671	Estrogens; fractionated
82672	Estrogens; total
82677	Estriol
82679	Estrone
83001	Gonadotropin; follicle stimulating hormone (FSH)
83002	Gonadotropin; luteinizing hormone (LH)
83498	Hydroxyprogesterone, 17-d
84144	Progesterone

84146	Prolactin
84402	Testosterone; free
84403	Testosterone; total
84443	Thyroid stimulating hormone (TSH)
84702	Gonadotropin, chorionic (hCG); quantitative
84703	Gonadotropin, chorionic (hCG); qualitative
86631	Antibody; Chlamydia
86632	Antibody; Chlamydia, IgM
86689	Antibody; HTLV or HIV antibody, confirmatory test (eg, Western Blot)
86701	Antibody; HIV-1
86702	Antibody; HIV-2
86703	Antibody; HIV-1 and HIV-2, single result
86704	Hepatitis B core antibody (HBcAb); total
86705	Hepatitis B core antibody (HBcAb); IgM antibody
86706	Hepatitis B surface antibody (HBsAb)
86762	Antibody; rubella
86803	Hepatitis C antibody
86804	Hepatitis C antibody; confirmatory test (eg, immunoblot)
87110	Culture, chlamydia, any source
87270	Infectious agent antigen detection by immunofluorescent technique; Chlamydia trachomatis
87340	Infectious agent antigen detection by immunoassay technique, (eg, enzyme immunoassay [EIA], enzyme-linked immunosorbent assay [ELISA], immunochemiluminometric assay [IMCA]) qualitative or semiquantitative, multiple-step method; hepatitis B surface antigen (HBsAg)
87341	Infectious agent antigen detection by immunoassay technique, (eg, enzyme immunoassay [EIA], enzyme-linked immunosorbent assay [ELISA], immunochemiluminometric assay [IMCA]) qualitative or semiquantitative, multiple-step method; hepatitis B surface antigen (HBsAg) neutralization
88261	Chromosome analysis; count 5 cells, 1 karyotype, with banding
88262	Chromosome analysis; count 15-20 cells, 2 karyotypes, with banding

88263	Chromosome analysis; count 45 cells for mosaicism, 2 karyotypes, with banding
88264	Chromosome analysis; analyze 20-25 cells
88280	Chromosome analysis; additional karyotypes, each study
88283	Chromosome analysis; additional specialized banding technique (eg, NOR, C-banding)
88285	Chromosome analysis; additional cells counted, each study
88289	Chromosome analysis; additional high resolution study
88364	In situ hybridization (eg, FISH), per specimen; each additional single probe stain procedure (List separately in addition to code for primary procedure)
88365	In situ hybridization (eg, FISH), per specimen; initial single probe stain procedure
88366	In situ hybridization (eg, FISH), per specimen; each multiplex probe stain procedure
89250	Culture of oocyte(s)/embryo(s), less than 4 days
89251	Culture of oocyte(s)/embryo(s), less than 4 days; with co-culture of oocyte(s)/embryos
89253	Assisted embryo hatching, microtechniques (any method)
89254	Oocyte identification from follicular fluid
89255	Preparation of embryo for transfer (any method)
89257	Sperm identification from aspiration (other than seminal fluid)
89260	Sperm isolation; simple prep (eg, sperm wash and swim-up) for insemination or diagnosis with semen analysis
89261	Sperm isolation; complex prep (eg, Percoll gradient, albumin gradient) for insemination or diagnosis with semen analysis
89264	Sperm identification from testis tissue, fresh or cryopreserved
89268	Insemination of oocytes
89272	Extended culture of oocyte(s)/embryo(s), 4-7 days
89280	Assisted oocyte fertilization, microtechnique; less than or equal to 10 oocytes
89281	Assisted oocyte fertilization, microtechnique; greater than 10 oocytes
89300	Semen analysis; presence and/or motility of sperm including Huhner test (post coital)
89310	Semen analysis; motility and count (not including Huhner test)

89320	Semen analysis; volume, count, motility, and differential
89321	Semen analysis; sperm presence and motility of sperm, if performed
89322	Semen analysis; volume, count, motility, and differential using strict morphologic criteria (eg, Kruger)
89325	Sperm antibodies
89329	Sperm evaluation; hamster penetration test
89330	Sperm evaluation; cervical mucus penetration test, with or without spinnbarkeit test
89331	Sperm evaluation, for retrograde ejaculation, urine (sperm concentration, motility, and morphology, as indicated)
G0010	Administration of hepatitis B vaccine
G0027	Semen analysis; presence and/or motility of sperm excluding Huhner
G0472	Hepatitis C antibody screening for individual at high risk and other covered indication(s)
J0725	Injection, chorionic gonadotropin, per 1,000 USP units
J1000	Injection, depo-estradiol cypionate, up to 5 mg
J1094	Injection, dexamethasone acetate, 1 mg
J1100	Injection, dexamethasone sodium phosphate, 1 mg
J1380	Injection, estradiol valerate, up to 10 mg
J1410	Injection, estrogen conjugated, per 25 mg
J1620	Injection, gonadorelin HCl, per 100 mcg
J2675	Injection, progesterone, per 50 mg
J3355	Injection, urofollitropin, 75 IU
J7512	Prednisone, immediate release or delayed release, oral, 1 mg
J9218	Leuprolide acetate, per 1 mg
S0122	Injection, menotropins, 75 IU
S0126	Injection, follitropin alfa, 75 IU
S0128	Injection, follitropin beta, 75 IU
S0132	Injection, ganirelix acetate, 250 mcg

S4011	In vitro fertilization; including but not limited to identification and incubation of mature oocytes, fertilization with sperm, incubation of embryo(s), and subsequent visualization for determination of development
S4013	Complete cycle, gamete intrafallopian transfer (GIFT), case rate
S4014	Complete cycle, zygote intrafallopian transfer (ZIFT), case rate
S4015	Complete in vitro fertilization cycle, not otherwise specified, case rate
S4016	Frozen in vitro fertilization cycle, case rate
S4017	Incomplete cycle, treatment cancelled prior to stimulation, case rate
S4018	Frozen embryo transfer procedure cancelled before transfer, case rate
S4020	In vitro fertilization procedure cancelled before aspiration, case rate
S4021	In vitro fertilization procedure cancelled after aspiration, case rate
S4022	Assisted oocyte fertilization, case rate
S4023	Donor egg cycle, incomplete, case rate
S4025	Donor services for in vitro fertilization (sperm or embryo), case rate
S4026	Procurement of donor sperm from sperm bank
S4028	Microsurgical epididymal sperm aspiration (MESA)
S4030	Sperm procurement and cryopreservation services; initial visit
S4031	Sperm procurement and cryopreservation services; subsequent visit
S4035	Stimulated intrauterine insemination (IUI), case rate
S4037	Cryopreserved embryo transfer, case rate
S4042	Management of ovulation induction (interpretation of diagnostic tests and studies, nonface-to-face medical management of the patient), per cycle
ICD-10 codes considered medically necessary if criteria are met:	
<i>Code</i>	<i>Description</i>
E29.1	Testicular hypofunction
I86.1	Scrotal Varices (Varicocele)
N53.11	Retarded ejaculation
N53.12	Painful ejaculation
N53.13	Anejaculatory orgasm

N53.14	Retrograde ejaculation
N97.0 - N97.9	Female infertility
N46.0 - N46.9	Male Infertility
Q55.4	Other congenital malformations of vas deferens, epididymis, seminal vesicles and prostate
R86.4	Abnormal immunological findings in specimens from male genital organs
R86.5	Abnormal microbiological findings in specimens from male genital organs
R86.9	Unspecified abnormal finding in specimens from male genital organs
Z31.41	Encounter for fertility testing
Z31.7	Encounter for procreative management and counseling for gestational carrier
Z31.83	Encounter for assisted reproductive fertility procedure cycle
Z31.89	Encounter for other procreative management
ICD-10 codes not considered medically necessary for the above procedures:	
N92.4	Excessive bleeding in the premenopausal period
N95.0 - N95.9	Menopausal and other perimenopausal disorders
Q50.02	Congenital absence of ovary, bilateral
Q55.0	Absence and aplasia of testis
Z31.0	Encounter for reversal of previous sterilization
Z78.0	Asymptomatic menopausal state
Z79.890	Hormone replacement therapy (postmenopausal)
Z98.51	Tubal ligation status
Z98.52	Vasectomy status

Codes considered medically necessary if clinical criteria are met:

Fertility Preservation	
<i>Code</i>	<i>Description</i>
57520	Conization of cervix, with or without fulguration, with or without dilation and curettage, with or without repair; cold knife or laser

57522	Conization of cervix, with or without fulguration, with or without dilation and curettage, with or without repair; loop electrode excision
57530	Trachelectomy (cervicectomy), amputation of cervix (separate procedure)
57531	Radical trachelectomy, 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)
58323	Sperm washing for artificial insemination
58970	Follicle puncture for oocyte retrieval, any method
89254	Oocyte identification from follicular fluid
89257	Sperm identification from aspiration (other than seminal fluid)
89258	Cryopreservation; embryo(s)
89259	Cryopreservation; sperm
89260	Sperm isolation; simple prep (eg, sperm wash and swim-up) for insemination or diagnosis with semen analysis
89261	Sperm isolation; complex prep (eg, Percoll gradient, albumin gradient) for insemination or diagnosis with semen analysis
89264	Sperm identification from testis tissue, fresh or cryopreserved
89300	Semen analysis; presence and/or motility of sperm including Huhner test (post coital)
89310	Semen analysis; motility and count (not including Huhner test)
89320	Semen analysis; volume, count, motility, and differential
89321	Semen analysis; sperm presence and motility of sperm, if performed
89322	Semen analysis; volume, count, motility, and differential using strict morphologic criteria (eg, Kruger)
89325	Sperm antibodies
89329	Sperm evaluation; hamster penetration test
89330	Sperm evaluation; cervical mucus penetration test, with or without spinnbarkeit test
89331	Sperm evaluation, for retrograde ejaculation, urine (sperm concentration, motility, and morphology, as indicated)
89337	Cryopreservation, mature oocyte(s)
89342	Storage (per year); embryo(s)

89343	Storage (per year); sperm/semen
89344	Storage (per year); reproductive tissue, testicular/ovarian
89346	Storage (per year); oocyte(s)
89352	Thawing of cryopreserved; embryo(s)
89353	Thawing of cryopreserved; Sperm/Semen, Each Aliquot
89354	Thawing of cryopreserved; reproductive tissue, testicular/ovarian
89356	Thawing of cryopreserved; oocytes, each aliquot
89398	<p>Unlisted reproductive medicine laboratory procedure</p> <ul style="list-style-type: none"> • <u>Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below:</u> • When this code is billed for ovarian reproductive tissue, it is considered medically necessary
J0725	Injection, chorionic gonadotropin, per 1,000 USP units
J1000	Injection, depo-estradiol cypionate, up to 5 mg
J1094	Injection, dexamethasone acetate, 1 mg
J1380	Injection, estradiol valerate, up to 10 mg
J1410	Injection, estrogen conjugated, per 25 mg
J3355	Injection, urofollitropin, 75 IU
S0122	Injection, menotropins, 75 IU
S0126	Injection, follitropin alfa, 75 IU
S0132	Injection, ganirelix acetate 250 mcg
S4027	Storage of previously frozen embryos
S4030	Sperm procurement and cryopreservation services; initial visit
S4031	Sperm procurement and cryopreservation services; subsequent visit
S4040	Monitoring and storage of cryopreserved embryos, per 30 days
S4042	Management of ovulation induction (interpretation of diagnostic tests and studies, nonface-to-face medical management of the patient), per cycle
ICD-10 codes considered medically necessary, but not limited to the following (please see the member's plan benefit for fertility preservation related to gender affirming procedures and hormone therapy):	
C00.0 - D49	Neoplasms

D27.0	Benign neoplasm of right ovary
D27.1	Benign neoplasm of left ovary
D39.10 - D39.12	Neoplasm of uncertain behavior of ovary
D40.10 - D40.12	Neoplasm of uncertain behavior of testis
N70.01 - N70.03	Acute salpingitis and oophoritis
N70.11 - N70.13	Chronic salpingitis and oophoritis
N83.511 - N83.519	Torsion of ovary and ovarian pedicle
Z31.62	Encounter for fertility preservation counseling
Z31.84	Encounter for fertility preservation procedure

CPT/HCPCS codes considered experimental or investigational for infertility:	
<i>Code</i>	<i>Description</i>
0664T	Donor hysterectomy (including cold preservation); open, from cadaver donor
0665T	Donor hysterectomy (including cold preservation); open, from living donor
0666T	Donor hysterectomy (including cold preservation); laparoscopic or robotic, from living donor
0667T	Donor hysterectomy (including cold preservation); recipient uterus allograft transplantation from cadaver or living donor
0668T	Backbench standard preparation of cadaver or living donor uterine allograft prior to transplantation, including dissection and removal of surrounding soft tissues and preparation of uterine vein(s) and uterine artery(ies), as necessary
0669T	Backbench reconstruction of cadaver or living donor uterus allograft prior to transplantation; venous anastomosis, each
0670T	Backbench reconstruction of cadaver or living donor uterus allograft prior to transplantation; arterial anastomosis, each
10004	Fine needle aspiration of additional lesion
10005	Fine needle aspiration of first lesion using ultrasound guidance
10006	Fine needle aspiration of additional lesion using ultrasound guidance
10007	Fine needle aspiration of first lesion using fluoroscopic guidance

10008	Fine needle aspiration of additional lesion using fluoroscopic guidance
10009	Fine needle aspiration of first lesion using CT guidance
10010	Fine needle aspiration of additional lesion using CT guidance
10011	Fine needle aspiration of first lesion using MR guidance
10012	Fine needle aspiration of additional lesion using MR guidance
10021	Fine needle aspiration; without imaging guidance [Fine needle aspiration ("mapping") of testes]
43631	Gastrectomy, partial, distal; with gastroduodenostomy
43632	Gastrectomy, partial, distal; with gastrojejunostomy
43633	Gastrectomy, partial, distal; with Roux-en-Y reconstruction
43634	Gastrectomy, partial, distal; with formation of intestinal pouch
43635	Vagotomy when performed with partial distal gastrectomy (List separately in addition to code[s] for primary procedure)
43644	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and Roux-en-Y gastroenterostomy (roux limb 150 cm or less)
43645	Laparoscopy, surgical, gastric restrictive procedure; with gastric bypass and small intestine reconstruction to limit absorption
43770	Laparoscopy, surgical, gastric restrictive procedure; placement of adjustable gastric restrictive device (eg, gastric band and subcutaneous port components)
43771	Laparoscopy, surgical, gastric restrictive procedure; revision of adjustable gastric restrictive device component only
43772	Laparoscopy, surgical, gastric restrictive procedure; removal of adjustable gastric restrictive device component only
43773	Laparoscopy, surgical, gastric restrictive procedure; removal and replacement of adjustable gastric restrictive device component only
43774	Laparoscopy, surgical, gastric restrictive procedure; removal of adjustable gastric restrictive device and subcutaneous port components
43775	Laparoscopy, surgical, gastric restrictive procedure; longitudinal gastrectomy (ie, sleeve gastrectomy)
43842	Gastric restrictive procedure, without gastric bypass, for morbid obesity; vertical-banded gastroplasty
43843	Gastric restrictive procedure, without gastric bypass, for morbid obesity; other than vertical-banded gastroplasty

43845	Gastric restrictive procedure with partial gastrectomy, pylorus-preserving duodenoileostomy and ileoileostomy (50 to 100 cm common channel) to limit absorption (biliopancreatic diversion with duodenal switch)
43846	Gastric restrictive procedure, with gastric bypass for morbid obesity; with short limb (150 cm or less) Roux-en-Y gastroenterostomy
43847	Gastric restrictive procedure, with gastric bypass for morbid obesity; with small intestine reconstruction to limit absorption
43848	Revision, open, of gastric restrictive procedure for morbid obesity, other than adjustable gastric restrictive device (separate procedure)
43886	Gastric restrictive procedure, open; revision of subcutaneous port component only
43887	Gastric restrictive procedure, open; removal of subcutaneous port component only
43888	Gastric restrictive procedure, open; removal and replacement of subcutaneous port component only
82626	Dehydroepiandrosterone (DHEA)
86357	Natural killer (NK) cells, total count
89240	Unlisted miscellaneous pathology test <ul style="list-style-type: none"> • <u>Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below:</u> • When this code is billed for perm DNA fragmentation testing, it is considered experimental/investigational
89335	Cryopreservation, reproductive tissue, testicular
89398	Unlisted reproductive medicine laboratory procedure <ul style="list-style-type: none"> • <u>Due to the broad nature of this code and lack of specificity in certain scenarios, clarification is provided below:</u> • When this code is billed for cryopreservation of immature oocytes or hyaluronan binding assay, it is considered experimental/investigational
97810	Acupuncture, 1 or more needles; without electrical stimulation, initial 15 minutes of personal one-on-one contact with the patient
97811	Acupuncture, 1 or more needles; without electrical stimulation, each additional 15 minutes of personal one-on-one contact with the patient, with re-insertion of needle(s)
97813	Acupuncture, 1 or more needles; with electrical stimulation, initial 15 minutes of personal one-on-one contact with the patient
97814	Acupuncture, 1 or more needles; with electrical stimulation, each additional 15 minutes of personal one-on-one contact with the patient, with re-insertion of needle(s)

S9558	Home injectable therapy; growth hormone, including administrative services, professional pharmacy services, care coordination, and all necessary supplies and equipment (drugs and nursing visits coded separately), per diem
-------	---

References

1. American College of Obstetricians and Gynecologists (ACOG). Committee Opinion No. 584. Oocyte cryopreservation. January 2014. Reaffirmed 2018.
2. American College of Obstetricians and Gynecologists (ACOG). Committee Opinion No. 589. (Replaces Committee Opinion Number 413, August 2008. Reaffirmed 2022). Female Age-Related Fertility Decline.
3. American College of Obstetricians and Gynecologists (ACOG). Committee Opinion No.605. Number 605 (Reaffirmed 2021). Primary Ovarian Insufficiency in Adolescents and Young Women.
4. American College of Obstetricians and Gynecologists (ACOG). Committee Opinion No. 671. (Replaces Committee Opinion No. 324, November 2005. Reaffirmed 2020). Perinatal Risks Associated With Assisted Reproductive Technology.
5. American College of Obstetricians and Gynecologists (ACOG). Committee Opinion No. 747 (Replaces Committee Opinion Number 607, August 2014. Reaffirmed 2021). Gynecologic Issues in Children and Adolescent Cancer Patients and Survivors.
6. American College of Obstetricians and Gynecologists (ACOG). Committee Opinion No. 749. (Replaces Committee Opinion Number 574, September 2013. Reaffirmed 2021). Marriage and Family Building Equality for Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual, and Gender Nonconforming Individuals.
7. American College of Obstetricians and Gynecologists (ACOG). Committee Opinion No. 781. Infertility Workup for the Women’s Health Specialist. *Obstetrics & Gynecology*. June 2019 (Reaffirmed 2023).
<https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2019/06/infertility-workup-for-the-womens-health-specialist>
8. American College of Obstetricians and Gynecologists. Committee Opinion No. 823. (Replaces Committee Opinion 512, December 2011, and Committee Opinion 685, January 2017). Health Care for Transgender and Gender Diverse Individuals. March 2021.
9. American Society for Reproductive Medicine (ASRM). Definitions of infertility and recurrent pregnancy loss: a committee opinion. *Fertility and Sterility*. 2020; 113(3):0015-0282.
<https://doi.org/10.1016/j.fertnstert.2019.11.025>
10. American Society for Reproductive Medicine (ASRM). Definition of Infertility: A committee opinion (2023). This document replaces the document titled “Definitions of infertility and recurrent pregnancy loss: a committee opinion,” last published in 2020 (*Fertil Steril*. 2020;113:533-535. PMID: 32115183). (2023; 2023 by American Society for Reproductive Medicine.) Retrieved from:
https://www.asrm.org/practice-guidance/practice-committee-documents/fertility-evaluation-of-infertile-women-a-committee-opinion-2021/?_t_id=Bgf-aeFhaCU66nMvLw0kNQ%3d%3d&_t_uuid=EmqKOWuBTAeW7DVN8GeMUw&_t_q=female+infertility+diagnosis&_t_tags=siteid%3a01216

- f06-3dc9-4ac9-96da-555740dd020c%2clanguage%3aen%2candquerymatch&_t_hit.id=ASRM_M odels_Pages_ContentPage/_201ad136-e639-46fb-ac1e-ed60ee512deb_en&_t_hit.pos=10
11. American Society for Reproductive Medicine (ASRM). Diagnostic evaluation of the infertile male: a committee opinion. *Fertility and Sterility*. 2015;103(3): p. e18-e25.
 12. American Society for Reproductive Medicine (ASRM). Diagnostic evaluation of the infertile female: a committee opinion. *Fertility and Sterility*. 2015;103(6): p. E44-e50.
 13. American Society for Reproductive Medicine (ASRM). Evidence-based treatments for couples with unexplained infertility: a guideline. Practice Committee of the American Society for Reproductive Medicine. *Fertility and Sterility*. 2020; 113(2): 0015-0282. Doi: <https://doi.org/10.1016/j.fertnstert.2019.10.014>
 14. American Society for Reproductive Medicine (ASRM). Fertility preservation in patients undergoing gonadotoxic therapy or gonadectomy: a committee opinion. Birmingham, AL: ASRM; December 2019.
 15. American Society for Reproductive Medicine (ASRM). Fertility Evaluation of infertile women: a committee opinion. *Fertility and Sterility*. 2021;116(5), 0015-0282. DOI:<https://doi.org/10.1016/j.fertnstert.2021.08.038>
 16. American Society for Reproductive Medicine (ASRM). Male Infertility. 0015-0282<https://www.asrm.org/practice-guidance/coding/coding-summaries/male-infertility/?ct=05fdd78ec25e954167945b108851fe1f583199b75de67c16eeffc901fdb3a1dd1ceef71d1aa59cb d7061830f29f6f6594c8912d869cab64439cd4b99733cdf51>
 17. American Society for Reproductive Medicine (ASRM). Testing and Interpreting measures of ovarian reserve: A Committee Opinion (2020). *Fertility and Sterility*. 2020; Vol. 114, No. 6: 0015-0282. doi: <https://doi.org/10.1016/j.fertnstert.2020.09.134>
 18. American Society of Reproductive Medicine. Stress and Infertility: Fact Sheet. Revised 2014.
 19. American Urological Association and American Society for Reproductive Medicine. (2020, Oct). *Diagnosis and Treatment of Infertility in Men: AUA/ASRM Guideline*. <https://www.asrm.org/globalassets/asrm/asrm-content/news-and-publications/practice-guidelines/for-non-members/diagnosis-and-treatment-of-infertility-in-men-uaa-asrm.pdf>
 20. Anawalt BD, Page ST. (February 2020). *Treatments for male infertility*. UpToDate. https://www.uptodate.com/contents/treatments-for-male-infertility?search=male%20infertility&source=search_result&selectedTitle=2~150&usage_type=default&display_rank=2
 21. Bedoschi G, Oktay K. Current approach to fertility preservation by embryo cryopreservation. *Fertil Steril*. 2013;99(6):1496–1502. doi:10.1016/j.fertnstert.2013.03.020
 22. Besselink DE, Farquhar C, Kremer JAM, et al. Cervical insemination versus intra-uterine insemination of donor sperm for subfertility. *Cochrane Database Syst Rev*. 2008;(2):CD000317.
 23. Brännström M, Johannesson L, Bokström H, et al. Livebirth after uterus transplantation. *Lancet* 2015; 385:607.
 24. Brännström, M., & Díaz-García, C. (2021, Apr). Uterus transplantation for absolute uterine factor infertility: Ethics, patient selection, and consent. UpToDate.com. Retrieved July 1, 2021 from <https://www.uptodate.com/contents/uterus-transplantation-for-absolute-uterine-factor-infertility->

ethics-patient-selection-and-consent?search=fertility%20after%20uterine%20transplant&topicRef=7440&source=see_link

25. Casper RF, Mitwally MFM. (Aug. 2020). *Ovulation induction with letrozole*. UpToDate. https://www.uptodate.com/contents/ovulation-induction-with-letrozole?search=ovulation%20induction%20letrozole&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1
26. Cynthia A. Stuenkel, Susan R. Davis, Anne Gompel, Mary Ann Lumsden, M. Hassan Murad, JoAnn V. Pinkerton, Richard J. Santen, Treatment of Symptoms of the Menopause: An Endocrine Society Clinical Practice Guideline, *The Journal of Clinical Endocrinology & Metabolism*, Volume 100, Issue 11, 1 November 2015, Pages 3975–4011, <https://doi.org/10.1210/jc.2015-2236>
27. Datta A, Campbell S, Deval B, Nargund G. Add-ons in IVF programme – Hype or Hope? Facts, Views & Vision in ObGyn. 2015;7(4):241-250.
28. Daya S. Follicle-stimulating hormone and human menopausal gonadotropin for ovarian stimulation in assisted reproduction cycles. *Cochrane Database Syst Rev*. 1996;(1):CD000061.
29. Deadmond A, Koch CA, Parry JP. Ovarian Reserve Testing. 2022 Dec 21. In: Feingold KR, Anawalt B, Blackman MR, Boyce A, Chrousos G, Corpas E, de Herder WW, Dhatariya K, Dungan K, Hofland J, Kalra S, Kaltsas G, Kapoor N, Koch C, Kopp P, Korbonits M, Kovacs CS, Kuohung W, Laferrère B, Levy M, McGee EA, McLachlan R, New M, Purnell J, Sahay R, Shah AS, Singer F, Sperling MA, Stratakis CA, Trencé DL, Wilson DP, editors. *Endotext* [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000–. PMID: 25905286.
30. Erman Akar M, Ozkan O, Aydinuraz B, et al. Clinical pregnancy after uterus transplantation. *Fertil Steril* 2013; 100:1358.
31. Ethics Committee of the American Society for Reproductive Medicine. Planned oocyte cryopreservation for women seeking to preserve future reproductive potential: an Ethics Committee opinion. *Fertil Steril*. 2018 Nov;110(6):1022-1028. doi: 10.1016/j.fertnstert.2018.08.027. PMID: 30396539. (Endorsed February 2023)
32. Gauthier T, Piver P, Pichon N, et al. Uterus retrieval process from brain dead donors. *Fertil Steril* 2014; 102:476.
33. Jo J, Lee YJ Effectiveness of acupuncture in women with polycystic ovarian syndrome undergoing in vitro fertilisation or intracytoplasmic sperm injection: a systematic review and meta-analysis *Acupuncture in Medicine* Published Online First: 11 January 2017. doi: 10.1136/acupmed-2016-011163
34. Jungwirth A, et al. Guidelines on male infertility. [Internet] European Association of Urology. 2017 Accessed at: <http://uroweb.org/guidelines/>. [accessed 2017 Mar 4]
35. Kamel RM. Management of the infertile couple: an evidence-based protocol. *Reprod Biol Endocrinol*. 2010 Mar 6;8:21.
36. Kuohung and Hornstein. "Overview of treatment of female infertility". 2014.
37. Kutluk O, Harvey BE, Partridge AH, et al. Fertility Preservation in Patients With Cancer: ASCO Clinical Practice Guideline Update. *Journal of Clinical Oncology* 2018 36:19, 1994-2001.
38. Legendre, Guillaume et al. Relationship between ovarian cysts and infertility: what surgery and when? *Fertility and sterility*, 101(3), 608-614.
39. Legro RS, Silva AA, et.al. Diagnosis and treatment of polycystic ovarian syndrome: American

- Endocrine Society Clinical Practice Guidelines. *J. Endocrinol Metab* (2013)98(12);4565-92
40. Linara-Demakakou E, Bodri D, Wang J, Arian-Schad M, Macklon N, Ahuja K. Cumulative live birth rates following insemination with donor spermatozoa in single women, same-sex couples and heterosexual patients. *Reprod Biomed Online*. 2020 Dec;41(6):1007-1014.
 41. Lindsay TJ, Vitrikas KR. Evaluation and treatment of infertility. *American Family Physician* 2015;91(5):308-14.
 42. Malinova M, Abouyta T, Krasteva M. The effect of vaginal sildenafil citrate on uterine blood flow and endometrium in the infertile women. *Akush Ginekol (Sofia)*. 2013;52 Suppl 1:26-30.
 43. Massin N. New stimulation regimens: Endogenous and exogenous progesterone use to block the LH surge during ovarian stimulation for IVF. *Hum Reprod Update*. 2017;23(2):211-220.
 44. The Mayo Clinic. Drugs and Supplements, DHEA: Evidence. Updated 01 July 2014. <http://www.mayoclinic.org/drugs-supplements/dhea/evidence/hrb-20059173>
 45. Mejia RB, Summers KM, Kresowik JD, et al. A randomized controlled trial of combination letrozole and clomiphene citrate or letrozole alone for ovulation induction in women with polycystic ovary syndrome. *Fertility and Sterility*. 2019; 111(3): 571-578e1. Doi: <https://doi.org/10.1016/j.fertnstert.2018.11.030>
 46. Morales IO, Santos R, Montoya JIO, Castro JAR. et al. CHANGES IN SPERM CONCENTRATION AND TOTAL MOTILITY, BEFORE AND AFTER THAWING IN CANCER PATIENTS COMPARED TO SPERM DONORS. *Fertility and Sterility*. 2020 Sept; 114(3): E256. DOI:<https://doi.org/10.1016/j.fertnstert.2020.10.021>
 47. Onofre J, Kadam P, Baert Y, Goossens E. Testicular tissue cryopreservation is the preferred method to preserve spermatogonial stem cells prior to transplantation. *Reproductive BioMedicine Online*. 2020 Feb;40(2):261-269. doi: 10.1016/j.rbmo.2019.10.016. Epub 2019 Nov 7. PMID: 32001160
 48. Onofre J, Baert Y, Faes K, Goossens E. Cryopreservation of testicular tissue or testicular cell suspensions: a pivotal step in fertility preservation. *Hum Reprod Update*. 2016 Nov;22(6):744-761. doi: 10.1093/humupd/dmw029. Epub 2016 Aug 27. PMID: 27566839
 49. Ozkan O, Akar ME, Ozkan O, et al. Preliminary results of the first human uterus transplantation from a multiorgan donor. *Fertil Steril* 2013; 99:470.
 50. Palermo, G.D., et al., Treatment of Male Infertility, in *Human Fertility: Methods and Protocols*, Z. Rosenwaks and P.M. Wassarman, Editors. 2014, Springer New York: New York, NY. p. 385-405.
 51. Practice Committee of the American Society for Reproductive Medicine. Evidence-based outcomes after oocyte cryopreservation for donor oocyte in vitro fertilization and planned oocyte cryopreservation: a guideline. *Fertil Steril*. 2021 Jul;116(1):36-47. doi: 10.1016/j.fertnstert.2021.02.024. PMID: 34148587. (Endorsed February 2023)
 52. Reich JA, Caplan A, Quinn GP, Blakemore JK. Counseling, risks, and ethical considerations of planned oocyte cryopreservation. *Fertility and Sterility*. 2022 Mar; 117(3) P481-484. Doi: <https://doi.org/10.1016/j.fertnstert.2021.12.029>
 53. Singh N, Gupta M, Kriplani A, Vanamail P. Role of Embryo Glue as a transfer medium in the outcome of fresh non-donor in-vitro fertilization cycles. *Journal of Human Reproductive Sciences*. 2015;8(4):214-217. doi:10.4103/0974-1208.170398.

54. Siristatidis CS, Vrachnis N, Creatsa M, et al. In vitro maturation in subfertile women with polycystic ovarian syndrome undergoing assisted reproduction. *Cochrane Database Syst Rev*. 2013;10:CD006606.
55. Starosta, A., Gordon, C.E. & Hornstein, M.D. Predictive factors for intrauterine insemination outcomes: a review. *Fertil Res and Pract* 6, 23 (2020).
<https://doi.org/10.1186/s40738-020-00092-1>
56. Synder PJ. (March 2020). *Clinical manifestations and evaluation of hyperprolactinemia*. UpToDate.https://www.uptodate.com/contents/clinical-manifestations-and-evaluation-of-hyperprolactinemia?search=elevated%20prolactin%20workup&source=search_result&selectedTitle=2~150&usage_type=default&display_rank=2
57. Tulandi T. (2020). *Reproductive surgery for female infertility*. UpToDate.
https://www.uptodate.com/contents/reproductive-surgery-for-female-infertility?search=hydrosalpinx&source=search_result&selectedTitle=3~20&usage_type=default&display_rank=3#H6887278

Clinical Guideline Revision / History Information

Original Date: 5/24/2017

Reviewed/Revised: 1/18/2018, 4/13/2018, 4/15/2019, 5/5/2020, 04/21/2021, 08/04/21, 12/01/2021, 7/26/2022, 10/20/2022, 05/2/2023, 04/16/2024