DRAFT FOR REVIEW

MEDICAL POLICY DETAILS	
Medical Policy Title	**Assisted Reproductive Technologies – In Vitro Fertilization**
Policy Number	**4.01.05**
Category	**Contract Clarification**
Original Effective Date	**06/20/01**
Committee Approval Date	**07/02/01, 08/22/02, 07/24/03, 06/24/04, 08/25/05, 08/31/06, 08/23/07, 08/28/08, 04/23/09, 06/24/10, 06/24/11, 06/28/12, 06/27/13, 06/26/14, 06/25/15, 06/22/16, 10/26/17, 10/25/18, 10/24/19, 12/10/20, 6/24/21, 12/16/21, 09/15/22, 06/XX/23**
Current Effective Date	**~~09/15/22,~~ 10/XX/23**
Archived Date	**N/A**
Archive Review Date	**N/A**
Product Disclaimer	• *If a product excludes coverage for a service, it is not covered, and medical policy criteria do not apply.* • *If a commercial product (including an Essential Plan or Child Health Plus product), medical policy criteria apply to the benefit.* • *If a Medicaid product covers a specific service, and there are no New York State Medicaid guidelines (eMedNY) criteria, medical policy criteria apply to the benefit.* • *If a Medicare product (including Medicare HMO-Dual Special Needs Program (DSNP) product) covers a specific service, and there is no national or local Medicare coverage decision for the service, medical policy criteria apply to the benefit.* • *If a Medicare HMO-Dual Special Needs Program (DSNP) product DOES NOT cover a specific service please refer to the Medicaid Product coverage line.*

****Additional coverage for MEDICAID MANAGED CARE/HARP MEMBERS is addressed at the end of this document****

POLICY STATEMENT

All Assisted Reproductive Technologies (ART), including but not limited to, in vitro fertilization (IVF) and artificial insemination, are contract dependent. All ART services must be provided by health care professionals who are qualified to provide such services, in accordance with the guidelines established and adopted by the American Society for Reproductive Medicine.

I. IVF, a type of ART, is considered medically appropriate when ALL of the following are met:
   A. For individuals younger than 35 years of age, when a successful pregnancy has not been achieved after six to 12 cycles of assisted insemination (e.g., artificial insemination or therapeutic donor insemination); or
   B. For individuals 35 years or older, when a successful pregnancy has not been achieved after three to six cycles of assisted insemination (e.g., artificial insemination or therapeutic donor insemination); and
   C. Failure of other reasonable, less expensive, and medically appropriate infertility treatments have not resulted in a successful pregnancy (e.g., treatment of ovulatory dysfunction, surgical treatment, etc.).

II. <u>ART are not medically appropriate when the reversal of an elective sterilization does not restore fertility (e.g., a male member who remains azoospermic following the reversal of a prior elective sterilization), or either partner has undergone an elective sterilization in the past.</u>

III. **IVF cycles for the sole purpose of embryo banking:** Based upon our criteria and assessment of the peer-reviewed literature, an IVF cycle initiated for the sole purpose of embryo banking (i.e., where none of the embryos that are suitable for transfer are used in the current cycle in which they are created, but instead, are frozen for use in a future cycle) is considered **not medically necessary**. All cryopreserved embryos that are

suitable for transfer must be transferred prior-to initiating another ovarian stimulation. Pre-implantation genetic testing may be performed to assist in the selection of suitable embryos for transfer (*refer to policy guideline III*).

IV. **Investigational procedures:** Based upon our criteria and assessment of the peer-reviewed literature, the following have not been medically proven to be effective and, therefore, are considered **investigational:**
   A. Assisted hatching;
   B. Hyaluronan binding assay (HBA);
   C. Co-culture of embryos; and
   D. Sperm DNA integrity tests (e.g., sperm chromatin structure assay [SCSA], sperm chromatin dispersion test [SCD], sperm DNA fragmentation assay [SDFA], deoxynucleotidyl transferase-mediated deoxyuridine triphosphate-biotin nick end labeling [TUNEL], single cell electrophoresis assay [COMET]).
   E. Reproductive medicine (endometrial receptivity analysis[ERA]), RNA gene expression profile, 238 genes by next-generation sequencing, endometrial tissue, predictive algorithm reported as endometrial window of implantation (e.g., pre-receptive, receptive, post-receptive).

POLICY GUIDELINES

I. Benefits for ART services include, but are not limited to, surgical procedures, including retrieval of eggs or sperm and the transfer of a fertilized egg.

   A. A cycle of assisted insemination consists of:
      1. Monitoring for ova production and ovulation (e.g., lab tests and ultrasound);
      2. Monitoring the uterine lining prior to insemination (e.g., ultrasound);
      3. Preparation of fresh or frozen semen;
      4. Intracervical (ICI) or intrauterine (IUI) insemination.

II. IVF consists of several steps over an interval of approximately two weeks and is considered a cycle of treatment rather than a procedure at a single point in time.

   A. An IVF cycle consists of:
      1. taking medication to stimulate production of ova;
      2. retrieval of ova;
      3. fertilization of ova with sperm to create embryo(s);
      4. fertilized embryo(s) transferred to the uterus;

      OR

      5. taking medication to prepare the endometrium
      6. transfer of previously cryopreserved embryo(s)

   The process continues through all necessary steps until all the viable embryo(s) are transferred. All cryopreserved embryos that are suitable for transfer must be transferred prior-to initiating another ovarian stimulation. Each transfer of an embryo(s) (either fresh or cryopreserved) is considered a cycle. If a member undergoes stimulation, retrieval and fertilization, that does not result in any embryos or pregnancy, this will still constitute a cycle.

III. Pre-implantation genetic testing may be performed to assist in the selection of suitable embryos for transfer when criteria for IVF are met and this testing is deemed medically necessary (*refer to policy #4.01.03 Prenatal Genetic Testing*).

IV. Peer-reviewed, published studies and professional society guidelines do not provide data concerning the appropriate number of cycles. Therefore, based upon specialty clinician input, when coverage is available for ART services and cycle limitations are not stipulated in the member's subscriber contract, the following will be considered medically appropriate:

   A. Artificial insemination is limited to a lifetime maximum of six cycles; and
   B. IVF is limited to a lifetime maximum of three cycles. A "cycle" is considered all treatment that starts when: preparatory medications are administered with the intent of undergoing IVF with embryo transfer.

V. All patients with coexisting medical conditions that place the patient and/or fetus at unacceptable risk (e.g., uncontrolled diabetes mellitus, poorly controlled hypertension, clinically severe obesity, or other uncontrolled medical conditions) should be counseled on lifestyle and behavioral modifications.

VI. There may be certain clinical situations where IVF could be considered first-line therapy (e.g., azoospermia, hysterosalpingogram demonstrating blocked fallopian tubes). These scenarios will be reviewed on a case-by-case basis for determination of medical necessity.

~~VII. Experimental, nonstandard, and/or unevaluated infertility treatments and drugs approved by the FDA that are not specifically approved to treat infertility are considered **investigational**. According to the American Society for Reproductive Medicine (ASRM), "Procedures (including tests, treatments, or other interventions) for the diagnosis or treatment of infertility will be considered experimental or investigational until the published medical evidence regarding their risks, benefits, and overall safety and efficacy is sufficient to regard them as established medical practice."~~

VIII. Infertility treatments for a partner who is not a member of the Health Plan are **ineligible for coverage**.

IX. Gestational Carrier/Surrogacy/Use of Host Uterus: Ovarian stimulation and the retrieval of eggs are covered for individuals with a known medical cause of infertility, who meet the criteria for IVF, and have IVF benefit coverage. The implantation of eggs, donor sperm, or embryo(s) into a gestational carrier/surrogate/host uterus, regardless of their Health Plan member status is not covered. A Health Plan member's pregnancy, as a result of acting as a gestational carrier/surrogate/host uterus, would be covered per the gestational carrier/surrogate/host uterus Health Plan member's benefit contract.

X. Clinical contraindications to infertility treatment with U.S. Food and Drug Administration (FDA) approved drugs are any coexisting medical conditions that place the patient and/or fetus at unacceptable risk (e.g., uncontrolled diabetes mellitus, poorly controlled hypertension, clinically severe obesity, use of prescription medication detrimental to or contraindicated for pregnancy), or other uncontrolled medical conditions.

XI. Contract Exclusions and Limitations:

A. IVF and other forms of ART are contract-dependent. Please refer to the terms of the member's contract or service agreement prior to review.
B. The following services may be ineligible for coverage:
   1. Procurement of donor sperm or ova;
   2. Cryopreservation of eggs, sperm or semen, embryo, oocyte, testicular or ovarian reproductive tissue.
   3. Monitoring and storage of cryopreserved eggs, embryo, oocyte, sperm or semen, testicular or ovarian reproductive tissue or previously frozen embryos;
   4. Thawing of cryopreserved eggs, embryo, oocyte, sperm or semen, testicular or ovarian reproductive tissue;
   5. Cloning services and procedures;
   6. Reversal of tubal ligations;
   7. Reversal of vasectomies; and
   8. Travel expenses.

DESCRIPTION

According to the American Society of Reproductive Medicine (ASRM), infertility is defined as a disease or condition characterized by the failure or incapacity to impregnate another person or to conceive. For the purposes of defining infertility, "disease" is defined as ''any deviation from or interruption of the normal structure or function of any part, organ, or system of the body as manifested by characteristic symptoms and signs; the etiology, pathology, and prognosis may be known or unknown.'' (Dorland's Illustrated Medical Dictionary, 31st edition, 2007:535). The American College of Obstetricians and Gynecologists (ACOG) defines infertility as "failure to achieve pregnancy within 12 months of unprotected intercourse or therapeutic donor insemination in women younger than 35 years or within 6 months in women older than 35 years." Early evaluation and treatment may be justified based on medical history and physical findings.

I. There are many causes of infertility, and may include:
   A. ovulatory dysfunctions such as: amenorrhea, oligoovulation, oligomenorrhea, or hyperprolactinemia;

B. uterine anomalies and abnormalities, such as unicornate, septate or bicornate uteri, endometrial polyps, submucous myomas, or synechiae;
C. peritoneal factors, such as endometriosis or pelvic/adnexal adhesions;
D. anatomic tubal damage or disease;
E. cervical factors, such as abnormal cervical mucus production or poor sperm-mucous interaction.
F. azoospermia - the absence of spermatozoa/sperm;
G. oligospermia - low sperm count;
H. low sperm motility; and
I. teratospermia - abnormal semen morphology.

II. ART procedures involve the laboratory handling of human ova, sperm and embryos in response to diagnosed infertility. ART procedures include, but are not limited to, the following:
A. Assisted insemination procedures in which fertilization takes place within the human body:
1. Artificial Insemination - a process involving the non-coital introduction of sperm into the cervical canal (intracervical) or uterine cavity (intrauterine), to produce conception. Intrauterine insemination can be used with ovulation stimulation.
2. Therapeutic Donor insemination- a process that requires the use of donor sperm, for assisted insemination.
B. Procedures in which fertilization takes place outside the human body:
1. In-Vitro Fertilization (IVF) - a process in which mature ova are removed from the ovaries by various methods, placed in a laboratory medium with sperm, and incubated. The embryo(s) are then placed into the uterus through the cervix.
2. Cryopreserved Embryo Transfer (CET) - the transfer of embryo(s) that were previously cryopreserved (frozen) in the laboratory, thawed, and then transferred into the uterus.
3. Intracytoplasmic Sperm Injection (ICSI) - the micromanipulation of sperm performed in a laboratory, and involving the injection of a single sperm directly into the cytoplasm of a mature ovum using a microinjection pipette.
C. Natural oocyte retrieval (NORIVF) - the harvesting of ova from the ovary following natural ovulation (ovulation without hormone therapy).

III. Co-culture of embryos involves an effort to improve the culture media for embryos, so that a greater proportion of embryos will reach the blastocyst stage and, hopefully, improve the implantation and pregnancy rate. In the co-culture procedure, "helper" cells are grown along with the developing embryo. A variety of co-culture techniques have been investigated, involving the use of feeder cell layers derived from a range of tissues (e.g., human oviducts, fetal bovine uterine or oviduct cells), to established cell lines.

IV. Assisted hatching involves a procedure intended to thin or perforate the zona pellucida. It has been investigated as a method of improving the implantation and subsequent pregnancy rates following IVF. Several techniques have been used to mechanically or chemically weaken the zona pellucida, including drilling, dissection, application of acid solutions or proteinases, and laser energy.

V. New York Insurance Law §4303 defines infertility as "a disease or condition characterized by the incapacity to impregnate another person or to conceive, due to the failure to establish a clinical pregnancy after 12 months of regular, unprotected sexual intercourse or therapeutic donor insemination, or after six months of regular unprotected sexual intercourse or therapeutic donor insemination for a female 35 years of age or older." The law also mandates the following benefits for treatment of infertility, under most insured managed care and indemnity health plans.
A. Policies that provide coverage of hospital care or surgical and medical care must cover the following services:
1. Services in relation to surgical and medical procedures to correct malformation, disease or dysfunction resulting in infertility; and
2. Services in relation to diagnostic tests and procedures necessary:
a. to determine infertility; or
b. in connection with any surgical or medical treatments or prescription drug coverage included in the mandate.

These services include, but are not limited to: hysterosalpingogram, hysteroscopy, endometrial biopsy, laparoscopy, sono-hysterogram, post-coital tests, testis biopsy, semen analysis, blood tests, and ultrasound.

B. In 2020, the law was expanded to require coverage of the following fertility preservation services under most insured managed care and indemnity health plans.

1. Standard fertility preservation services when a medical treatment is necessary to correct malformation, disease or dysfunction that may, directly or indirectly, cause iatrogenic infertility; or when fertility is impaired by surgery, radiation, chemotherapy or other medical treatment affecting reproductive organs or processes. Standard fertility preservation services include:
   a. ooctye procurement and cryopreservation services; and
   b. embryo cryopreservation and storage.
2. Basic infertility treatments (e.g., intrauterine insemination procedures) must be provided to individuals who are unable to conceive due to their sexual orientation or gender identify.
3. Cryopreservation will be covered in connection with an intended IVF procedure if medically necessary, until the three covered IVF cycles are provided.

Under the statute, fertility preservation services solely for the purpose of delaying reproduction are not eligible for coverage.

The statute does not require coverage of procedures to reverse a previous voluntary sterilization procedure or infertility treatment for a person in connection with such reversal.

C. Policies providing coverage for prescription drugs that also cover hospital or medical/surgical services must provide coverage for FDA approved drugs for the diagnosis and treatment of infertility.

1. Also excluded from the mandate are medical or surgical services or procedures that are deemed experimental in accordance with the guidelines and standards of the American College of Obstetricians and Gynecologists (ACOG) and the American Society for Reproductive Medicine (ASRM), which state: "A procedure for the treatment of infertility is considered experimental until there is adequate scientific evidence of safety and efficacy from appropriately designed, peer-reviewed, published studies by different investigator groups."
2. The diagnosis of infertility must be made, and treatment must be prescribed by a physician and documented in plan of care.
3. The determination of appropriate candidates for the treatment of infertility, and the identification of the required training, experience and other standards for health care providers who wish to diagnose and treat infertility, are governed by the standards and guidelines adopted by ACOG and ASRM.

VI. Endometrial Receptivity Analysis (ERA)

ERA has been proposed for women with repeat implantation failures. The goal of ERA is to identify an individual's window of implantation(WOI) during an IVF transfer cycle. This requires a biopsy of the endometrium during a mock transfer cycle of IVF, where the individual undergoes the preparatory steps of IVF, including medications. No transfer of embryos occurs at this time. After endometrial biopsy, the receptivity is measured by the presence of exogenous and/or endogenous progesterone after oestradiol priming and is analyzed through next-generation sequencing to identify each endometrial stage: proliferative, pre-receptive, receptive, and post-receptive. The identification of the receptive stage might push forward or back the date of embryo transfer.

VII. Surrogacy/Gestational Carrier/Host Uterus- Traditional surrogacy is defined as the use of an individual who has a biological connection to the intended parents to receive eggs, or donor sperm to have a biologically related child when infertility is diagnosed. This can be accomplished through assisted insemination or IVF. A gestational carrier is a third-party individual without any familial/biological connection to intended parents who are infertile, who agrees to act as a host uterus, to receive eggs, donor sperm, or embryo(s) to achieve and carry a pregnancy. This is typically accomplished via IVF, unless the gestational carrier also provides the donor eggs, which would allow for attempts at assisted insemination.

RATIONALE

Assisted hatching (AH)

The AH procedure has been utilized by clinicians, but this practice is not strongly supported by the evidence. In 2012, Carney et al. published an update of a 2009 Cochrane systematic review and meta-analysis on AH, to determine the effect of AH of embryos from assisted conception on live birth and multiple pregnancy rates. Randomized, controlled trials of AH (mechanical, chemical or laser disruption of the zona pellucida prior to embryo replacement) versus no AH that reported live birth or clinical pregnancy were reviewed for quality assessments and data extraction. Thirty-one trials reported clinical pregnancy data, including 1992 clinical pregnancies in 5728 women. The authors concluded that, while AH does appear to offer a significantly increased chance of achieving a clinical pregnancy, the extent to which it may do so only just reaches statistical significance; the "take home" baby rate was still not proven to be increased by AH; and the included trials provided insufficient data to investigate the impact of AH on several important outcomes and most trials still failed to report on live birth rates. The current data do not support the use of AH as a routine practice to improve IVF outcomes.

The most recently updated guideline from the American Society of a Reproductive Medicine that addresses AH ~~(2014)~~ **(2022)** states, "~~There is good evidence that assisted hatching (AH) slightly improves clinical pregnancy rates, particularly in poor prognosis patients, including those with prior failed in vitro fertilization (IVF) cycles. Due to a limited number of studies, there is insufficient evidence to conclude that AH improves live birth rates.~~" The guideline also stated, "~~AH should not be recommended routinely for all patients undergoing IVF.~~" **In studies evaluating pregnancy rates in an unselected patient population, there is moderate evidence that live birth rates are not significantly different between embryos that have undergone AH vs. those that have not. In patients with a poor prognosis, the data are mixed regarding improvement in live birth rates with laser-AH." The data is insufficient to make recommendations regarding the use of laser-AH in frozen embryo transfer cycles (Strength of evidence: B; strength of recommendation: moderate).**

Co-culture of embryos

There is no standardized method of co-culture, and few clinical trials have evaluated outcomes. Most studies have not found improved implantation or pregnancy rates after co-culture. One 2015 randomized, controlled trial reported on a novel co-culture method, and an interim analysis of the trial found a higher clinical pregnancy rate with co-culture than with standard practice control group. Additional studies are needed to evaluate this novel co-culture technique. No studies have reported on the impact of co-culture on live birth rates.

ERA

To date, only one RCT has been identified comparing ERA (personalized embryo transfer [pET])with IVF conducted with frozen (FET) or fresh embryo transfer (ET) (Simon, et al. 2020). The study included 458 patients over 16 centers, who were less than 37 years of age undergoing IVF with blastocyst transfer. The study reported significantly higher cumulative pregnancy and live birth rates but there were several limitations. The intention to treat analysis demonstrated comparable clinical outcomes across the three transfer types, individuals with repeated infertility failures were excluded, and there was a 50% drop out rate causing the study to be underpowered. The evidence does not demonstrate that personalized embryo transfer utilizing the ERA test improves the net health outcome.

CODES

- *Eligibility for reimbursement is based upon the benefits set forth in the member's subscriber contract.*
- *CODES MAY NOT BE COVERED UNDER ALL CIRCUMSTANCES. PLEASE READ THE POLICY AND GUIDELINES STATEMENTS CAREFULLY.*
- *Codes may not be all inclusive as the AMA and CMS code updates may occur more frequently than policy updates.*
- ***Code Key: Experimental/Investigational = (E/I), Not medically necessary/ appropriate = (NMN).***

CPT Codes

Code	Description
58321	Artificial insemination; intra-cervical
58322	Artificial insemination; intra-uterine

Code	Description
58323	Sperm washing for artificial insemination
58970	Follicle puncture for oocyte retrieval, any method
58974	Embryo transfer, intrauterine
58976	Gamete, zygote, or embryo intrafallopian transfer, any method
89250	Culture of oocyte(s)/embryo(s), less than 4 days
89251 **(E/I)**	Culture of oocyte(s)/embryo(s), less than 4 days; with co-culture of oocyte(s)/embryos
89253 **(E/I)**	Assisted embryo hatching, microtechniques (any method)
89254	Oocyte identification from follicular fluid
89255	Preparation of embryo for transfer (any method)
89256	Preparation of cryopreserved embryos for transfer (includes thaw)
89257	Sperm identification from aspiration (other than seminal fluid)
89261	Sperm isolation; complex prep (e.g. 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, greater than 10 oocytes
0253U **(E/I)**	Reproductive medicine (endometrial receptivity analysis), RNA gene expression profile, 238 genes by next-generation sequencing, endometrial tissue, predictive algorithm reported as endometrial window of implantation (e.g., pre-receptive, receptive, post-receptive) (ERA, Igenomix)
0058T	Cryopreservation; reproductive tissue, ovarian
89258	Cryopreservation; embryo(s)
89259	Cryopreservation; sperm
89335	Cryopreservation, reproductive tissue, testicular
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

Code	Description
89398	Unlisted reproductive medicine laboratory procedure

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HCPCS Codes

Code	Description
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
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
S4028	Microsurgical epididymal sperm aspiration (MESA)
S4035	Stimulated intrauterine insemination (IUI), case rate
S4037	Cryopreserved embryo transfer, case rate
S4042	Management of ovulation induction (interpretation of diagnostic tests and studies, non-face-to-face medical management of the patient), per cycle
S4025	Donor services for in vitro fertilization (sperm or embryo), case rate
S4026	Procurement of donor sperm from sperm bank
S4027	Storage of previously frozen embryo
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

ICD10 Codes

Code	Description
E23.0	Hypopituitarism
N46.01-N46.9	Male infertility (code range)
N97.0-N97.9	Female infertility (code range)
Z31.83	Encounter for assisted reproductive fertility procedure cycle

REFERENCES

*Agency for Healthcare Research and Quality. Effectiveness of assisted reproductive technology. Evidence report Publication No. 08-E012. 2008 May [https://archive.ahrq.gov/research/findings/evidence-based-reports/er167-abstract.html] accessed 02/23/23.

~~Al-Inany HG, et al. Gonadotrophin-releasing hormone antagonists for assisted reproductive technology. Cochrane Database Syst Rev 2016 Apr;4:*CD001750.*~~

American College of Obstetricians and Gynecologists Committee on Gynecologic Practice; Practice Committee of the American Society for Reproductive Medicine. Committee Opinion No. 589: Female age-related fertility decline. Obstet Gynecol 2014 Mar;123(3):719-21. **Reaffirmed 2022**.

American College of Obstetricians and Gynecologists Committee on Gynecologic Practice; Practice Committee of the American Society for Reproductive Medicine. Committee Opinion No. 230: Obesity in Pregnancy. Obstet Gynecol. 2021 Jun;128(6):1450. **Reaffirmed 2021**.

American College of Obstetricians and Gynecologists Committee on Gynecologic Practice; Practice Committee of the American Society for Reproductive Medicine. Committee Opinion No. 781: Infertility workup for the women's health specialist. Obstet Gynecol. 2016 Dec;128(6):1450. **Reaffirmed 2023.**

American Society for Reproductive Medicine [https://www.asrm.org/news-and-publications/practice-committee-documents/] accessed 02/23/23.

- ASRM standard embryo transfer protocol template: a committee opinion. 2017 Nov.
- Blastocyst culture and transfer in clinical-assisted reproduction. 2018 Dec.
- Definitions of infertility and recurrent pregnancy loss. 2020 Mar.
- Diagnostic evaluation of the infertile female. 2015 Jun.
- Diagnostic evaluation of the infertile male. 2020 Oct.
- Elective single-embryo transfer. 2012.
- Female age-related fertility decline. 2014 Mar.
- Guidance on the limits to the number of embryos to transfer: a committee opinion. 2017 Apr.
- Intracytoplasmic sperm injection (ICSI) for non-male factor infertility. 2020 Aug.
- In vitro maturation. 2021 Feb.
- Optimizing natural fertility. 2016 Oct.
- Revised minimum standards for practices offering assisted reproductive technologies. 2020 Mar.
- The Role of assisted hatching in in vitro fertilization: a guideline. 2022 Feb.
- *The management of infertility due to obstructive azospermia. 2019 May.

~~*American Urological Association. The optimal evaluation of the infertile male: AUA best practice statement. Reviewed 2011 [Optimal Evaluation of the Infertile Male - American Urological Association (auanet.org)] accessed 06/07/22.~~

*Badawy A, et al. Clomiphene citrate or aromatase inhibitors for superovulation in women with unexplained infertility undergoing intrauterine insemination: a prospective randomized trial. Fertil Steril 2009 Oct;92(4):1355-9.

~~Benkhalifa M, et al. Autologous embryo-cumulus cells co-culture and blastocyst transfer in repeated implantation failures: a collaborative prospective randomized study. Zygote 2012 May;20(2):173-80.~~

~~Assisted reproductive technologies for male subfertility. Cochrane Database Syst Rev. 2016 Feb 26;2:CD000360. Updated.~~

*Boomsma CM, et al. Semen preparation techniques for intrauterine insemination. Cochrane Database Syst Rev 2019;(10):CD004507.

*Cantineau AEP and Cohlen BJ. Ovarian stimulation protocols (anti-oestrogens, gonadotrophins with and without GnRH agonists/antagonists) for intrauterine insemination (IUI) in women with subfertility. Cochrane Database Syst Rev 2007;(2):CD005356.

~~Carney SK, et al. Assisted hatching on assisted conception (in vitro fertilisation (IVF) and intracytoplasmic sperm injection (ICSI)). Cochrane Database Syst Rev 2021;(3):CD001894.~~

Centers for Disease Control and Prevention. Assisted reproductive technology. Last updated 2020 December 30 https://www.cdc.gov/ART/index.html] accessed 02/23/23.

~~Cissen M, et al. Assisted reproductive technologies for male subfertility. Cochrane Database Syst Rev 2016 Feb;2:*CD000360*.~~

*Collins JA, et al. Do sperm DNA integrity tests predict pregnancy with in vitro fertilization? Fertil Steril 2008 Apr;89(4):823-31.

*Custers IM, et al. Intrauterine insemination: how many cycles should we perform? Hum Reprod 2008 Apr;23(4):885-8.

~~Das S, et al. Assisted hatching on assisted conception (IVF and ICSI). Cochrane Database of Systematic Reviews 2012;(12):CD001894.~~

*ESHRE Capri Workshop Group. Intrauterine insemination. Hum Reprod Update 2009 May-Jun;15(3):265-77.

Farquhar C, et al. Assisted reproductive technology: an overview of Cochrane reviews. Cochrane Database Syst Rev 2018;(8):CD010537.

*Ghobara T and Vandekerckhove P. Cycle regimens for frozen-thawed embryo transfer. Cochrane Database Syst Rev 2017;(7):CD003414.

Glujovsky D, et al. Cleavage stage versus blastocyst stage embryo transfer in assisted conception. Cochrane Database Syst Rev 2022;(5):CD002118.

~~Hansen M, et al. Assisted reproductive technology and birth defects: a systematic review and meta-analysis. Hum Reprod Update 2013 Jul-Aug;19(4):330-53.~~

~~Huang Z, et al. Brief co-incubation of sperm and oocytes for in vitro fertilization techniques. Cochrane Database Syst Rev 2013 Apr 30;4:CD009391.~~

*Joint SOGC-CFAS. Guidelines for the number of embryos to transfer following in vitro fertilization No. 182, 2006 Sep. Int J Gynaecol Obstet 2008 Aug;102(2):203-16.

~~Kanyo K, Zeke J, Kriston R, et al. The impact of laser-assisted hatching on the outcome of frozen human embryo transfer cycles. Zygote. Mar 9 2016:1-6. PMID 26957232~~

*Kwan I, et al. Monitoring of stimulated cycles in assisted reproduction (IVF and ICSI). Cochrane Database Syst Rev 2014;(8):CD005289.

Lacey L, et al. Assisted hatching on assisted coneception (in vitro fertilization (IVF) and intracytoplasmic sperm infection (ICSI)). Cochrane Database Syst Rev 2021 Mar 17;CD001894.

Lepine S, et al. Advanced sperm selection techniques for assisted reproduction. Cochrane Database Syst Rev 2019;(7):CD010461.

~~Martins WP, et al. Assisted hatching of human embryos: a systematic review and meta-analysis of randomized controlled trials. Human Repro Update (2013) 19 (2): 207.~~

*Martins WP, et al. Assisted hatching of human embryos: a systematic review and meta-analysis of randomized controlled trials. Hum Reprod Update 2011 Jul-Aug;17(4):438-53.

New York Insurance Law §§ 3221(k)(6)(C)[http://public.leginfo.state.ny.us/lawssrch.cgi?NVLWO:]. Accessed 02/23/23.

New York Insurance Law §§ 4303(s)(3))[http://public.leginfo.state.ny.us/lawssrch.cgi?NVLWO:]. Accessed 02/23/23.

~~J, de Mouzon J, Nicollet B, et al. Increased pregnancy rate using standardized coculture on autologous endometrial cells and single blastocyst transfer : a multicentre randomized controlled trial. Cell Mol Biol (Noisy-le-grand). 2015;61(8):79-88.~~

*Pandian Z, et al. Number of embryos for transfer after IVF and ICSI: a Cochrane review. Hum Reprod 2005 Oct;20(10):2681-7.

*Pandian Z, et al. In vitro fertilisation for unexplained subfertility. Cochrane Database Syst Rev 2015;(11):CD003357.

~~Ren X, et al. Effect of the site of assisted hatching on vitrified-warmed blastocyst transfer cycles: a prospective randomized study. J Assist Reprod Genet 2013 Jun;30(5):691-7.~~

Shi W, Hongwei T, Zhang W, et al. A prospective randomized controlled study of laser-assisted hatching on the outcome of first fresh IVF-ET cycle in advanced age women. Reprod Sci. 2016 Oct;23(10):1397-401.

Salang L, et al. Luteal phase support for women trying to coneive by intrauterine insemination or sexual intercourse. Cochrane Database Syst Rev 2022 Aug 24;(8)CD012396.

*Simon et al. A 5-year multicentre randomized controlled trial comparing personalized, frozen and fresh blastocyst transfer in IVF. RBMO. 2020 ;41(3):402-415.

Sini I, et al. Embryo banking with mild ovarian stimulation for IVF: an alternative strategy for poor prognosis patients. J Reprod Infertil Jul-Sep 2020;21(3):176-182.

Teixeira DM, et al. Regular (ICSI) versus ultra-high magnification (IMSI) sperm selection for assisted reproduction. Cochrane Database Syst Rev 2020;(2):CD010167.

~~van der Linden M, et al. Luteal phase support for assisted reproduction cycles. Cochrane Database Syst Rev 2015;(7):CD009154.~~

*van Hoogenhuijze, et al. Endometrial scratching in women with implantation failure after a first IVF/ICSI cycle; does it lead to a higher live birth rate? The SCRaTCH study: a randomized control trial (NTR 5342)BMC Womens Health. 2017 Jul 21. Epub ahead of print.

~~Zhao J, et al. Whether sperm deoxyribonucleic acid fragmentation has an effect on pregnancy and miscarriage after in vitro fertilization/intracytoplasmic sperm injection: a systematic review and meta-analysis. Fertil Steril 2014 Oct;102(4):998-1005.e8.~~

*Key Article

KEY WORDS

Artificial insemination, In-vitro fertilization (IVF)

CMS COVERAGE FOR MEDICARE PRODUCT MEMBERS

Based on our review, Assisted Reproductive Technologies for Infertility is not addressed in National or Regional Medicare coverage determinations or policies.

COVERAGE FOR NYS MEDICAID MANAGED CARE/HARP PRODUCT MEMBERS

Effective October 1, 2019, Medicaid Managed Care (MMC) and Health and Recovery Plan (HARP) benefits will include medically necessary ovulation enhancing drugs and medical services related to prescribing and monitoring the use of such drugs for individuals 21 through 44 years of age experiencing infertility.

For Medicaid purposes, infertility is a condition characterized by the incapacity to conceive, defined by the failure to establish a clinical pregnancy after:

1. Twelve months of regular, unprotected sexual intercourse for individuals 21 through 34 years of age, or
2. Six months for individuals 35 through 44 years of age.

Infertility benefits include:

1. Office visits
2. Hysterosalpingograms
3. Pelvic ultrasounds

4. Blood testing
5. Ovulation enhancing drugs.

The ovulation enhancing drugs included in the Medicaid formulary are:

1. Bromocriptine
2. Clomiphene Citrate
3. Letrozole
4. Tamoxifen.

Benefits will be limited to coverage for three (3) cycles of treatment per lifetime.

October 2019 Medicaid Update Bulletin:
https://www.health.ny.gov/health_care/medicaid/program/update/2019/2019-06.htm#ovulation