Clinical Policy: Genetic Testing Preimplantation Genetic Testing

Reference Number: CP.MP.233 Coding Implications
Date of Last Revision: 02/22 Revision Log

See Important Reminder at the end of this policy for important regulatory and legal information.

Description

Preimplantation genetic testing involves analysis of biopsied cells from an embryo as a part of an assisted reproductive procedure. Preimplantation genetic testing for monogenic disorders (PGT-M) and preimplantation genetic testing for structural rearrangements (PGT-SR) are used to detect a specific inherited disorder in conjunction with in vitro fertilization (IVF) and aims to prevent the birth of affected children to couples at an increased risk of transmitting either a gene mutation(s) or an unbalanced structural chromosomal rearrangement that can be typically targeted in this context. Preimplantation genetic testing for aneuploidy (PGT-A) is used to screen for potential chromosomal or subchromosomal abnormalities (e.g., chromosomal aneuploidy) in conjunction with IVF for couples; in this case testing is untargeted.

Below is a list of higher volume tests and the associated laboratories for each criteria section. This list is not all inclusive.

CPT® Codes	Example Tests (Labs)	Criteria Section	Common ICD Codes
89290,89291, 81479,88291	Spectrum PGT-A (Natera) Preimplantation Genetic Testing for Chromosomal Aneuploidy (Invitae)	Preimplantation Genetic Testing for Aneuploidy (PGT-A)	N97.0, N97.9, Z31
0254U	SMART PGT-A (Preimplantation Genetic Testing - Aneuploidy) (Igenomix)	Preimplantation Genetic Testing for Aneuploidy (PGT-A)	N97.0, N97.9, Z31
89290,89291, 81403,81479	Spectrum PGT-M (Natera) PGT-M (Cooper Genomics)	Preimplantation Genetic Testing for Monogenic Disorders (PGT-M	N97.0, N97.9, Z14.8, Z31
89290,89291, 81479,81403, 81228,88291	Preimplantation Genetic Testing for Structural Chromosomal Rearrangements/Translocations (Invitae)	Preimplantation Genetic Testing for Structural Rearrangements (PGT-SR)	N97.0, N97.9, Z14.8, Z31

This policy document provides criteria for preimplantation genetic testing. Please refer to:

- ***CP.MP.234 Genetic Testing: Prenatal and Preconception Carrier Screening*** for criteria related to carrier screening.
- ***CP.MP.235 Genetic Testing: Prenatal Diagnosis (via amniocentesis, CVS, or PUBS) and Pregnancy Loss*** for criteria related to diagnostic genetic testing during pregnancy or for a pregnancy loss.
- ***CP.MP.231 Genetic Testing: Noninvasive Prenatal Screening (NIPS)*** for criteria related to prenatal cell-free DNA screening tests.

- ***CP.MP.230 Genetic Testing: Multisystem Inherited Disorders, Intellectual Disability, and Developmental Delay*** for criteria related to diagnostic genetic testing in the postnatal period.
- ***CP.MP.222 Genetic Testing: General Approach to Genetic Testing*** for criteria related to preimplantation genetic testing that is not specifically discussed in this or another non-general policy.

Policy/Criteria

Preimplantation Genetic Testing For Aneuploidy (PGT-A)

I. It is the policy of health plans affiliated with Centene Corporation® that current evidence does not support preimplantation genetic testing for aneuploidy (PGT-A) (89290, 89291, 0254U, 81479).

Preimplantation Genetic Testing For Monogenic Disorders (PGT-M)

I. It is the policy of health plans affiliated with Centene Corporation® that preimplantation genetic testing for monogenic disorders (PGT-M) (89290, 89291, 81479, 81403) may be considered **medically necessary** when:

   A. The embryo is at an elevated risk of a genetic disorder due to one of the following:

      1. Both biological parents are known carriers for the same autosomal recessive disorder,
      2. One biological parent is a known carrier of an autosomal dominant disorder,
      3. One biological parent is a known carrier of an X-linked recessive disorder.

II. It is the policy of health plans affiliated with Centene Corporation® that current evidence does not support preimplantation genetic testing for monogenic disorders (PGT-M) (89290, 89291, 81479, 81403) for all other indications.

Preimplantation Genetic Testing For Structural Rearrangements (PGT-SR)

I. It is the policy of health plans affiliated with Centene Corporation® that preimplantation genetic testing for structural rearrangements (PGT-SR) (89290, 89291, 81479, 81403) may be considered **medically necessary** when:

   A. The embryo is at an elevated risk of a genetic disorder because one biological parent has a chromosomal rearrangement.

II. It is the policy of health plans affiliated with Centene Corporation® that current evidence does not support preimplantation genetic testing for structural rearrangements (PGT-SR) (89290, 89291, 81479, 81403) for all other indications.

Notes and Definitions

1. Close relatives include first, second, and third degree blood relatives on the same side of the family:

    a. **First-degree relatives** are parents, siblings, and children

    b. **Second-degree relatives** are grandparents, aunts, uncles, nieces, nephews, grandchildren, and half siblings

    c. **Third-degree relatives** are great grandparents, great aunts, great uncles, great grandchildren, and first cousins

2. Preimplantation genetic testing for monogenic disorders (**PGT-M**) and Preimplantation genetic testing for structural rearrangements (**PGT-SR**) are used to detect a specific single-gene inherited disorder or chromosome rearrangement in conjunction with in vitro fertilization (IVF)

3. Preimplantation genetic testing for aneuploidy (**PGT-A**) is used to screen for chromosomal aneuploidy in conjunction with IVF for couples.

Background

American Society for Reproductive Medicine

The American Society for Reproductive Medicine published an opinion on the use of preimplantation genetic diagnosis (PGD) for serious adult-onset conditions (2013). The statement includes the following:

- "Preimplantation genetic diagnosis (PGD) for adult-onset conditions is ethically justifiable when the conditions are serious and when there are no known interventions for the conditions or the available interventions are either inadequately effective or significantly burdensome."

- "For conditions that are less serious or of lower penetrance, PGD for adult[-]onset conditions is ethically acceptable as a matter of reproductive liberty. It should be discouraged, however, if the risks of PGD are found to be more than merely speculative."

The opinion also stated that physicians and patients should be aware that much remains unknown about the long-term effects of embryo biopsy on the developing fetus and that experienced genetic counselors should be involved in the decision process.

The American Society for Reproductive Medicine issued an opinion on the use of preimplantation genetic testing (PGS) for aneuploidy (2018) which concluded, "Large, prospective, well-controlled studies evaluating the combination of multiple approaches (genomics, time-lapse imaging, transcriptomics, proteomics, metabolomics, etc.) for enhanced embryo selection applicable in a more inclusive IVF population are needed to determine not only the effectiveness, but also the safety and potential risks of these technologies. PGT-A will likely be part of a future multidimensional approach to embryo screening and selection. At present, however, there is insufficient evidence to recommend the routine use of blastocyst biopsy with aneuploidy testing in all infertile patients."

This position was reaffirmed in a 2020 committee opinion regarding clinical management of mosaic results from preimplantation genetic testing for aneuploidy of blastocysts, stating, "It should be recognized that this document does not endorse nor does it suggest that PGT-A is appropriate for all cases of IVF."

American College of Obstetricians and Gynecologists

The American College of Obstetricians and Gynecologists issued Committee Opinion No. 799 (2020) regarding Preimplantation Genetic Testing. The recommendations include the following:

- "Preimplantation genetic testing comprises a group of genetic assays used to evaluate embryos before transfer to the uterus. Preimplantation genetic testing-monogenic (known as PGT-M) is targeted to single gene disorders. Preimplantation genetic testing-monogenic uses only a few cells from the early embryo, usually at the blastocyst stage, and misdiagnosis is possible but rare with modern techniques. Confirmation of preimplantation genetic testing-monogenic results with chorionic villus sampling (CVS) or amniocentesis should be offered."

- "To detect structural chromosomal abnormalities such as translocations, preimplantation genetic testing-structural rearrangements (known as PGT-SR) is used. Confirmation of preimplantation genetic testing-structural rearrangements results with CVS or amniocentesis should be offered."

- "The main purpose of preimplantation genetic testing-aneuploidy (known as PGT-A) is to screen embryos for whole chromosome abnormalities. Traditional diagnostic testing or screening for aneuploidy should be offered to all patients who have had preimplantation genetic testing-aneuploidy, in accordance with recommendations for all pregnant patients."

The American College of Obstetricians and Gynecologists (2015, reaffirmed 2017) issued an opinion that recommends "[p]atients with established causative mutations for a genetic condition" who are undergoing in vitro fertilization and desire prenatal genetic testing should be offered the testing, either preimplantation or once pregnancy is established.

Coding Implications

This clinical policy references Current Procedural Terminology (CPT®). CPT® is a registered trademark of the American Medical Association. All CPT codes and descriptions are copyrighted 2021, American Medical Association. All rights reserved. CPT codes and CPT descriptions are from the current manuals and those included herein are not intended to be all-inclusive and are included for informational purposes only. Codes referenced in this clinical policy are for informational purposes only. Inclusion or exclusion of any codes does not guarantee coverage. Providers should reference the most up-to-date sources of professional coding guidance prior to the submission of claims for reimbursement of covered services.

Reviews, Revisions, and Approvals	Revision Date	Approval Date
Policy developed.	02/22	02/22

References

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Important Reminder

This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. The Health Plan makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved. "Health Plan" means a health plan that has adopted this clinical policy and that is operated or administered, in whole or in part, by Centene Management Company, LLC, or any of such health plan's affiliates, as applicable.

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This clinical policy is effective as of the date determined by the Health Plan. The date of posting may not be the effective date of this clinical policy. This clinical policy may be subject to applicable legal and regulatory requirements relating to provider notification. If there is a discrepancy between the effective date of this clinical policy and any applicable legal or regulatory requirement, the requirements of law and regulation shall govern. The Health Plan retains the right to change, amend or withdraw this clinical policy, and additional clinical policies may be developed and adopted as needed, at any time.

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Note: For Medicaid member/enrollees, when state Medicaid coverage provisions conflict with the coverage provisions in this clinical policy, state Medicaid coverage provisions take precedence. Please refer to the state Medicaid manual for any coverage provisions pertaining to this clinical policy.

Note: For Medicare member/enrollees, to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs, LCDs, and Medicare Coverage Articles should be reviewed prior to applying the criteria set forth in this clinical policy. Refer to the CMS website at http://www.cms.gov for additional information.