



CIGNA MEDICAL COVERAGE POLICY

The following Coverage Policy applies to all health benefit plans administered by CIGNA Companies including plans formerly administered by Great-West Healthcare, which is now a part of CIGNA.

Subject Preimplantation Genetic Diagnosis

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- Down Syndrome Screening
- Genetic Counseling
- Genetic Testing for Hemoglobinopathies
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- Infertility Services
- Recurrent Pregnancy Loss: Diagnosis and Treatment

INSTRUCTIONS FOR USE

Coverage Policies are intended to provide guidance in interpreting certain **standard** CIGNA HealthCare benefit plans. Please note, the terms of a customer's particular benefit plan document [Group Service Agreement (GSA), Evidence of Coverage, Certificate of Coverage, Summary Plan Description (SPD) or similar plan document] may differ significantly from the standard benefit plans upon which these Coverage Policies are based. For example, a customer's benefit plan document may contain a specific exclusion related to a topic addressed in a Coverage Policy. In the event of a conflict, a customer's benefit plan document **always supercedes** the information in the Coverage Policies. In the absence of a controlling federal or state coverage mandate, benefits are ultimately determined by the terms of the applicable benefit plan document. Coverage determinations in each specific instance require consideration of 1) the terms of the applicable benefit plan document in effect on the date of service; 2) any applicable laws/regulations; 3) any relevant collateral source materials including Coverage Policies and; 4) the specific facts of the particular situation. Coverage Policies relate exclusively to the administration of health benefit plans. Coverage Policies are not recommendations for treatment and should never be used as treatment guidelines. In certain markets, delegated vendor guidelines may be used to support medical necessity and other coverage determinations. Proprietary information of CIGNA. Copyright ©2011 CIGNA

Coverage Policy

Coverage of in vitro fertilization and related services is subject to the terms, conditions, and limitations of the applicable benefit plan document. Many benefit plans specifically exclude in vitro fertilization (IVF) and related procedures. CIGNA does not cover IVF services associated with pre-implantation genetic diagnosis (PGD) unless: 1) the plan specifically covers IVF; and 2) medical necessity criteria are met as outlined in the Infertility Services Coverage Policy.

CIGNA covers the embryo biopsy procedure, genetic test, and pre- and post-test genetic counseling associated with PGD as an alternative to amniocentesis or chorionic villus sampling as medically necessary when the results of the genetic test will impact clinical decision-making and/or clinical outcome when ANY of the following criteria is met:

- detection of a genetic disorder in an embryo when both partners are known carriers of a single gene autosomal recessive disorder
- detection of a genetic disorder in an embryo when one partner is a known carrier of a single gene autosomal dominant disorder or a single X-linked disorder

- detection of a chromosomal abnormality when one partner has a balanced (reciprocal) or unbalanced (Robertsonian) translocation

When the specific criteria noted above are met, CIGNA will cover the embryo biopsy procedure to obtain the cell and genetic test associated with PGD under the core medical benefits of the plan.

CIGNA does not cover PGD for any of the following indications because each is considered experimental, investigational or unproven:

- screening of common aneuploidy or chromosomal translocations in women of advanced maternal age (i.e., \geq age 35) with repeat IVF failures or recurrent spontaneous abortions, or for the purpose of improving IVF implantation success
- human leukocyte antigen (HLA) typing of an embryo to identify a future suitable stem cell, tissue or organ transplantation donor
- carrier testing to determine carrier status of the embryo
- screening for adult-onset/late-onset disorders (e.g., Alzheimer's disease, cancer predisposition)

CIGNA does not cover PGD for testing of embryos for nonmedical gender selection or nonmedical traits because it is considered not medically necessary.

General Background

Preimplantation genetic diagnosis (PGD) is a diagnostic procedure first developed in the early 1990s with the intent of providing an alternative to traditional prenatal genetic diagnosis (e.g., amniocentesis and chorionic villus sampling [CVS]) for fertile couples at reproductive risk of transmitting an inherited disease to their offspring. It is a technique that allows embryos to be tested for genetic disorders and deselected before entering the uterus and prior to pregnancy. PGD has the potential to avoid the need to terminate an affected pregnancy through the identification and transfer of unaffected embryos only. The intended goal of PGD is to guarantee that a pregnancy will be free of genetic abnormalities, thus eliminating the need to consider termination of a fetus. Approximately 20% of PGD procedures results in a pregnancy (Reproductive Health Technologies Project [RHTP], 2006).

Proposed PGD applications include:

- the detection of chromosomal rearrangements (e.g., translocation) in order to decrease the rate of spontaneous abortions and prevent the birth of children born with chromosomal imbalance
- increase embryo implantation rates of in vitro fertilization (IVF) to reduce the incidence of spontaneous abortion and to prevent trisomic offspring in women of advanced maternal age (e.g., age \geq 35) who are undergoing infertility treatment
- to detect and prevent the transmission of single gene disorders (e.g., cystic fibrosis)

PGD has also been considered as a method for human leukocyte antigen (HLA) typing in order to create a future matching donor for a sibling requiring hematopoietic stem-cell transplantation and for the identification of embryos at risk for late-onset disorders. PGD has also been employed for nonmedical purposes (e.g., embryo sex and trait selection).

In PGD, one or two cells are removed from embryos obtained by biopsy using IVF procedures. For this reason, PGD has been used primarily in patients who are already undergoing IVF due to infertility. It should be noted, however, that a couple need not be infertile to undergo IVF associated with PGD. Couples who do not meet the classic definition of infertility but are considered at risk for passing on a single gene disease to offspring may employ IVF techniques to allow for PGD so that affected embryos can be deselected. In this situation, the IVF procedures are being performed solely to accomplish PGD.

The risks for PGD include the possibility of a misdiagnosis and unknown long-term risks to the fetus. Because of the possibility of misdiagnosis, it is often recommended that the PGD diagnosis be confirmed by subsequent CVS or amniocentesis. Also, as with IVF, generally there is no certainty that a pregnancy will occur after the

embryo is implanted. With improving laboratory techniques, pregnancy rates are likely to improve. The other risks include those common to all IVF treatments (e.g., risks associated with the hormones used to stimulate ovulation, ectopic pregnancy, and multiple pregnancies) (Genetics and Public Policy Center, 2003).

Whether PGD can replace the current standard of prenatal genetic diagnosis through amniocentesis or CVS is still not known. Many centers continue to recommend confirmation of PGD results by subsequent prenatal amniocentesis or CVS.

Embryo Biopsy Procedures

Three sources of diagnostic material or cells obtained via biopsy have been used in PGD analysis:

- blastomeres from cleavage-stage embryos
- polar bodies from the oocyte/zygote stage
- trophoctoderm cells from blastocysts

Each of these materials represents different developmental stages between the mature oocyte and blastocyst. Each biopsy method involves the same two steps: breaching the zona pellucida and removal of the cellular material.

The most commonly used method for performing PGD involves testing blastomeres during the cleavage stage. The embryo is typically biopsied on the morning of day three of development (e.g., day one is the day of zygote formation) when the embryo is composed of six to eight blastomeres. Following genetic diagnosis, the suitable embryos are transferred to the uterus on days four or five of development (i.e., blastocyst stage). The advantage of performing a biopsy at the cleavage stage is that one or two cells can be removed with little effect on development. The major disadvantage is the limited amount of material that is available for analysis. Sensitivity and specificity values for this method have been reported to be 96.9% and 88.3% respectively with a negative predictive value of 96% and a positive predictive value of 90.5% (Dreesen, et al., 2008).

Another method used to carry out PGD involves examining genetic material from the first and second polar body (PB). This analysis is used for the detection of maternal numerical chromosomal abnormalities, as the majority of aneuploidies are maternally-linked. The technique is limited in the information it provides as it does not test for paternal contribution to the embryo. In addition, polar body biopsy data cannot be replicated unless it is followed by blastomere biopsy.

Blastocyst stage biopsy is performed approximately five days after insemination. Performing the biopsy of cells from blastocysts has the advantage over other stages because of the ability to remove more cells for analysis. Accumulating evidence highlights that blastocyst biopsy has no adverse affect on either embryo implantation or development to term (Harton, et al., 2010). Laser-assisted biopsy of the human blastocyst has led to improved accuracy of PGD results (Swanson, et al., 2007).

PGD for Single Cell Disorders

The polymerase chain reaction (PCR) method is typically used for testing for monogenic or single gene disorders (e.g., autosomal recessive conditions cystic fibrosis and β -thalassemia). PGD has been used for detection of other autosomal recessive diseases including: Tay-Sach's disease, sickle cell anemia, spinal muscular atrophy, Gaucher disease, Factor V Leiden, Fanconi's anemia, and congenital adrenal hyperplasia. Autosomal dominant monogenic diseases that have been detected with PGD include: myotonic dystrophy, Charcot-Marie-Tooth disease IA, Marfan's syndrome, and osteogenesis imperfecta. Single gene X-linked conditions detected using PGD include: Duchenne/Becker muscular dystrophy, hemophilia, Fragile X syndrome, mental retardation, agammaglobulinemia, Wiskott-Aldrich syndrome, and Lesch-Nyhan syndrome. The fluorescence in situ hybridization (FISH) method has replaced PCR for sex determination for X-linked disorders in many centers. The FISH method is used to examine the chromosomes of the embryo and to diagnose embryo sex in X-linked disorders that may affect the male offspring so that only female embryos are transferred.

Reported pregnancy rates for PGD for single gene disorders vary with the type of disease tested and the pattern of inheritance. The European Society of Human Reproduction and Embryology (ESHRE) PGD Consortium assessed the cumulative data from 1197 cycles received by the consortium during the 1999–2001 data collection period for all forms of embryo biopsy for genetic diagnosis, excluding screening and social sexing.

The results showed an overall clinical pregnancy rate of 22.4% per embryo transfer (17.3% per oocyte retrieval procedure undertaken). Biopsy was successful in 97% of cases, and the diagnosis was obtained in 86% of successfully biopsied blastomeres. One-hundred nineteen pregnancies resulted from 575 cycles tested for single gene diseases (Braude, et al., 2002).

PGD for Structural Abnormalities/Translocations

Chromosomal structural abnormalities include deletions, duplications, translocations, inversions, and rings. Of these structural abnormalities, translocations have been the most evaluated for the application of PGD. Reciprocal or balanced translocations (i.e., an exchange of two terminal segments from different chromosomes) and Robertsonian or unbalanced translocations have been reported to occur in one of every 500 live births. Carriers of these balanced translocations are generally phenotypically normal, as there is no net loss of genetic material but may be detected when the couple presents with infertility or recurrent pregnancy loss. In addition, balanced translocations may be discovered when there is a phenotypically-abnormal offspring arising from the production of genetically-unbalanced gametes (Kanavakis, 2002; Braude, et al., 2002). Two approaches used in PGD to identify translocations are FISH and PB biopsy. The primary aim of PGD for translocation determination is to improve live birth rates by either reducing the risk of recurrent spontaneous abortions or to improve pregnancy rate in infertile couples (e.g., after failed IVF attempts).

The evidence evaluating the outcomes of PGD for chromosomal structural abnormalities consists primarily of prospective and retrospective case series, with patient populations ranging from 18–43 couples. Otani et al. (2006) reported a statistically significant decrease in pregnancies lost after PGD (5.3%) compared with 100% before PGD ($p < 0.001$). Kyu et al. (2004) evaluated the efficacy and clinical outcome of PGD using FISH for couples with chromosomal translocations and found that the spontaneous abortion rate was significantly reduced from 95.8% (69/72) to 16.7% (3/18) in these couples. Fridstrom et al. (2001) reported a pregnancy rate of 29% per embryo transfer after treatment with PGD. Munné et al. (2000) found that PGD of translocations achieved a statistically significant reduction in spontaneous abortion.

While not robust, there is evidence in the published, peer-reviewed scientific literature to support the use of PGD for the detection of chromosomal translocations as a method to improve live birth rates, or to reduce the risk of pregnancy loss for translocation carriers.

PGD for Aneuploidy Screening (PGD-AS): Using FISH to detect chromosomal abnormalities allows chromosomal numbering analysis in single cells. PGD has been used for the screening of embryos for common aneuploidies in couples undergoing IVF procedures for infertility with a history of recurrent pregnancy loss, repeated IVF failures and/or advanced maternal age. When PGD is performed for any of these indications, it has been referred to as PGD-AS, or as preimplantation genetic screening (PGS). Outcome measures used in PGD-AS include pregnancy rates (e.g., for recurrent pregnancy loss, and live birth rates). The error rate of aneuploidy detection has been reported to be as high as 15%. This use of PGD is a screening procedure to detect those aneuploidies most commonly observed after birth or in miscarriages (e.g., involving detection of chromosomes X, Y, 13, 16, 18, 21, and 22). Together, these chromosomes account for 95% of all chromosomal abnormalities.

Studies evaluating the effectiveness of PGS include prospective nonrandomized and randomized controlled trials. In general study results have suggested that PGS does not improve pregnancy outcomes for young women with recurrent implantation failure or those of advanced maternal age (DeBrock, et al., 2010; Meyer, et al., 2009; Yakin, et al., 2008; Hardarson, et al., 2008; Mastenbroek, et al., 2007; Staessen, et al., 2004).

A systematic review and meta-analysis ($n=10$ RCTs) by Checa et al. (2009) found IVF/ICSI with PGS for aneuploidy did not increase the rates of ongoing pregnancies and live births, but instead was associated with lower rates. A Cochrane systematic review of RCTs ($n=2$) by Twisk et al. (2006) reported that there was insufficient data to determine if PGS is effective in improving birth rates.

There is insufficient evidence in the published, peer-reviewed scientific literature to support the use of PGD-AS of the most common aneuploidy in order to improve IVF success rates in women with a history of recurrent pregnancy loss, repeated IVF failures and/or advanced maternal age. Impact on overall net health outcomes remains unclear at this point. It is not known whether this testing precludes the need for amniocentesis or CVS.

PGD for Late-Onset Disorders

Proposed indications for use of PGD are being extended as compared with standard practice of prenatal genetic diagnosis through CVS and amniocentesis. One of the proposed uses of PGD is the identification of embryos at risk for late-onset or adult-onset diseases such as Alzheimer's disease and cancer predisposition. The use of PGD in late-onset disorders is controversial and has not been well-studied.

There is insufficient evidence in the published, peer-reviewed scientific literature to support the use of PGD for late-onset disorders. The role of PGD in identifying those embryos at risk for late-onset disorders is not known at this time.

PGD for Human Leukocyte Antigen (HLA) Typing

PGD has been proposed as a method for HLA matching for preselection of potential donor progeny for bone marrow transplantation (Verlinsky, et al., 2001). The goal is to create a future child who may serve as a donor for hematopoietic stem cells or other tissues for a sibling afflicted with a specific disease. This technique can be considered another method of accomplishing a successful donor search. This use of PGD is typically combined with genetic testing of the embryo for the specific inherited disease, such as Fanconi's anemia, to ensure the future child will not be affected with that disease.

Van de Velde et al. (2008) presented the results of preimplantation HLA typing of embryos for hematopoietic stem cell (HSC) transplantation in two European centers (n=139). At UZ Brussel in Brussels (n=32), the major indication for HLA-only typing was leukemia and the major indication for HLA typing in combination with PGD was sickle cell anemia. At Genoma in Rome (n=107), couples were mostly underwent HLA typing in combination with PGD for β -thalassaemia and HLA-only typing for leukemia. The fertilization rate was 68.0% and 88.5% at UZ Brussel and at Genoma, respectively. The implantation rates were 32.4% and 28.2%, respectively, and the birth rates per cycle were 9.4% and 18.6%, respectively. Overall, in the two centers, 139 couples were treated in 284 cycles and 51 healthy HLA-matched babies were born (15.9% live birth rate). Hematopoietic stem cells collected from the umbilical cord blood after delivery were transplanted to the affected siblings of seven couples. The authors acknowledged the ethical issues associated with application of PGD for HLA typing. It was noted that the smaller sample size in one of the centers may have biased results. The study is also limited by its retrospective design.

Kuliev et al. (2005) reported on their experience with preimplantation HLA typing. This involved HLA typing in 1130 embryos, including 105 in combination with Fanconi anemia (FA), 507 in combination with thalassemia, 44 in combination with other conditions, and 474 for leukemia and Diamond-Blackfan anemia (DBA) without testing for the causative gene. Preselection of HLA-matched embryos occurred in 19/62 unaffected embryos for FA; 88/304 unaffected embryos for thalassemia; 4/26 unaffected embryos for the other conditions; and 88/474 embryos tested only for HLA in the cases of leukemia and DBA. In total, the authors reported 195 (17.3%) HLA-matched embryos were identified, of which 123 were transferred, yielding 13 (16.3%) clinical pregnancies and birth of HLA-matched healthy children as potential compatible donors.

Results from smaller studies (Kahraman, et al., 2004; Verlinsky, et al., 2001) have suggested that the application of PGD-HLA typing may be promising; however these studies are also limited by sample size and retrospective design.

Although the reviewed literature indicates that HLA matching as part of PGD is technically feasible, there is insufficient evidence to support or recommend this method as an option for HLA typing for the identification of a suitable donor for potential stem cell or other tissue or organ transplantation.

General Literature Review

The New York University School of Medicine Fertility Center reported on their ten-year experience with PGD (Grifo, et al., 2007). Included in the report were all IVF, embryo biopsy and transfer procedures as well as PCR and FISH analyses from 1995–2000. During this time, 304 PGD-IVF cycles were performed on 190 patients; 181 (60%) were performed for single gene defects and 123 (40%) were performed for chromosomal aneuploidies (AS) and translocations (TS). Implantation rate for single gene disorders (SGD), AS, and TS were 24%, 27%, and 47%, respectively. Clinical pregnancy rates for SGD, AS and TS were 35%, 37%, and 67%, respectively. Eighty-eight patients underwent PGD for AS, 44 for recurrent miscarriage, 37 for advanced maternal age (≥ 38 years and all with a history of elevated FSH), five for repeated IVF failures, seven for couples with an aneuploid fetus/child, and 18 for a combination of the above. Miscarriage rates, defined as a proportion of gestational sacs not resulting in live births, were 22% for SGD, 29% for AS, and 14% for TS. When

calculated as the proportion of fetal heartbeats aborted per fetal heartbeats detected, the rates were much lower: 12% for SGD, 12.5% for AS, and 14% for TS. The authors encouraged genetic counseling and confirmatory CVS or amniocentesis and concluded that PGD may help improve ongoing pregnancy rates in poor-prognosis patients.

Professional Societies/Organizations

In 2009, the American College of Obstetricians and Gynecologists (ACOG) issued a Practice Committee opinion on preimplantation genetic screening (PGS) in which the following recommendations for PGS were made:

- Current data does not support a recommendation for preimplantation genetic screening for aneuploidy using fluorescence in situ hybridization solely because of maternal age.
- Preimplantation genetic screening for aneuploidy does not improve in vitro fertilization success rates and may be detrimental.
- At this time there are no data to support preimplantation genetic screening for recurrent unexplained miscarriage and recurrent implantation failures; its use for these indications should be restricted to research studies with appropriate informed consent.

In 2007, the American Society for Reproductive Medicine and the Society for Assisted Reproductive Technology updated their Practice Committee opinion on preimplantation genetic testing. Recommendations for PGD and PGS were outlined and included:

Recommendations for PGD:

- Before PGD is performed, genetic counseling must be provided.
- PGD can reduce the risk for conceiving a child with a genetic abnormality carried by one or both parents if that abnormality can be identified with tests performed on a single cell.
- Prenatal diagnostic testing to confirm the results of PGD is encouraged strongly because PGD has technical limitations that include the possibility of false negatives.

Recommendations for PGS:

- Before PGS is performed, thorough education and counseling must be performed to ensure the patient understands the limitations of the technique, risk of error, and lack of evidence that PGS improves outcomes.
- Available evidence does not support the use of PGS as currently performed to improve live-birth rates in patients with advanced maternal age.
- Available evidence does not support the use of PGS as currently performed to improve live-birth rates in patients with previous implantation failure.
- Due to the high prevalence of aneuploidy in patients with recurrent implantation failure, decisions concerning future treatments should not be based on the results of PGS in one or more cycles.
- Available evidence does not support the use of PGS as currently performed to improve live-birth rates in patients with recurrent pregnancy loss.
- Available evidence does not support the use of PGS as currently performed to reduce miscarriage rates in patients with recurrent pregnancy loss related to aneuploidy (ASRM, 2007).

The Preimplantation Genetic Diagnosis International Society (PGDIS), in 2007, updated their guidelines for good practice in PGD. They state that PGD is currently performed for single gene disorders, late onset disorders with genetic predisposition, chromosomal disorders, including aneuploidy and structural rearrangements, and HLA typing to improve the access to HLA matched stem cell transplantation. The PGDIS recommends that first and second polar body cells and blastomeres (cleavage stage biopsy) be used in PGD and states that although blastocyst biopsy can be performed, the clinical application of this technique is new and requires large scale validation. In this consensus document, the PGDIS made the following recommendations for the indications in which PGD should be used:

- carriers of Mendelian disorders
- HLA typing for stem cell therapy of an affected sibling
- carriers of translocations or other structural chromosome abnormalities
- idiopathic recurrent pregnancy loss
- to reduce trisomic conceptions and spontaneous abortions in infertile patients

The European Society of Human Reproduction and Embryology (ESHRE) Preimplantation Genetic Diagnosis (PGD) Consortium published best practice guidelines for PGD and PGS. The Consortium recommended the use of polar body or cleavage stage biopsy but states that experience with and clinical application of blastocyst biopsy is limited at this time. Included in the guidelines were recommendations for inclusion criteria for PGD and PGS as well recommendations for timing of biopsy. The Consortium listed the following inclusion criteria for PGD (Thornhill, et al., 2004):

- genetic diagnosis is certain or almost certain
- high recurrence risk exists at conception for a specific genetic disorder or recurrent miscarriage related to parental structural chromosome abnormality
- as a consequence of this genetic disorder, serious health problems are expected.
- HLA typing: the affected previous child has malignant disorder or genetic disorder, and the child is likely to be cured or life expectancy is substantially prolonged by stem cell transplant with cord blood from and HLA identical sibling (after all other clinical options have been exhausted).

Inclusion criteria for PGS were as follows:

- recurrent miscarriage (> 2 miscarriages)
- repeated implantation failure (e.g. > 3 embryo transfers with high quality embryos or the transfer of ≥ 10 embryos in multiple transfers) defined as the absence of a gestational sac on ultrasound at ≥ 5 weeks post-embryo transfer.
- advanced maternal age (>36 completed years).

Summary

There is sufficient peer-reviewed scientific literature to support the use of preimplantation genetic diagnosis (PGD). PGD is utilized as an early indicator prior to prenatal genetic diagnosis (i.e., amniocentesis or chorionic villus sampling) for the detection of single gene disorders in couples at high risk for aneuploid pregnancy if one or more partners has a known chromosomal abnormality (e.g., X-linked disorder, balanced or unbalanced translocation).

There is insufficient evidence in the published, peer-reviewed scientific literature to support the use of PGD for: human leukocyte antigen (HLA) - matching, screening of common aneuploidy or chromosomal translocations as a method to improve live birth rates, to reduce the risk of pregnancy loss in women of advanced maternal age, or for late-onset disorders. Additional well-designed, multicenter studies are needed before the role of preimplantation genetic screening (PGS) for aneuploidy can be established.

PGD testing of embryos for the sole purpose of nonmedical gender selection or nonmedical traits is considered not medically necessary as the test results will not impact clinical decision-making.

Coding/Billing Information

Note: This list of codes may not be all-inclusive.

Covered when medically necessary when used to report genetic testing associated with preimplantation genetic diagnosis (PGD), as outlined in the Coverage Policy section of this policy:

CPT [®] * Codes	Description
83890	Molecular diagnostics; molecular isolation or extraction, each nucleic acid type (ie, DNA or RNA)
83891	Molecular diagnostics; isolation or extraction of highly purified nucleic acid, each nucleic acid type (ie, DNA or RNA)
83892	Molecular diagnostics; enzymatic digestion, each enzyme treatment
83894	Molecular diagnostics; dot/slot blot production, each nucleic acid preparation
83896	Molecular diagnostics; nucleic acid probe, each
83897	Molecular diagnostics; nucleic acid transfer (eg, Southern, Northern), each

	nucleic acid preparation
83898	Molecular diagnostics; amplification, target, each nucleic acid sequence
83900	Molecular diagnostics; amplification, target, multiplex, first 2 nucleic acid sequences
83904	Molecular diagnostics; mutation identification by sequencing, single segment, each segment
83909	Molecular diagnostics; separation and identification by high resolution technique (eg, capillary electrophoresis), each nucleic acid preparation
83912	Molecular diagnostics; interpretation and report
83914	Mutation identification by enzymatic ligation or primer extension, single segment, each segment (eg, oligonucleotide ligation assay [OLA], single base chain extension [SBCE], or allele-specific primer extension [ASPE])
84999	Unlisted chemistry procedure
88299	Unlisted cytogenetic study
89290	Biopsy, oocyte polar body or embryo blastomere, microtechnique (for preimplantation genetic diagnosis); less than or equal to 5 embryos
89291	Biopsy, oocyte polar body or embryo blastomere, microtechnique (for preimplantation genetic diagnosis); greater than 5 embryos

HCPCS Codes	Description
S0265	Genetic counseling, under physician supervision, each 15 minutes

ICD-9-CM Diagnosis Codes	Description
277.00-277.03	Cystic Fibrosis
335.10-335.19	Spinal muscular atrophy
758.0-758.9	Chromosomal anomalies
759.6	Other hamartoses, not elsewhere classified
759.81	Prader-Willi syndrome
759.82	Marfan syndrome
759.83	Fragile X syndrome
759.89	Other specified congenital anomalies
V18.9	Family history of genetic disease carrier
V26.33	Genetic counseling

*Current Procedural Terminology (CPT®) ©2010 American Medical Association: Chicago, IL.

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Policy History

Pre-Merger Organizations	Last Review Date	Policy Number	Title
CIGNA HealthCare	6/15/2008	0108	Preimplantation Genetic Diagnosis

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