

How is PGD Performed?

PGD requires testing of a single cell obtained from an embryo. Embryos are selected following IVF and sometimes intracytoplasmic sperm injection (ICSI). ICSI is a process whereby a single sperm is microinjected into an egg to facilitate fertilization of the egg. IVF requires the woman to receive injectable medications to stimulate her ovaries to produce multiple eggs. After careful monitoring, eggs are



collected under intravenous conscious sedation, and each mature egg may be injected with a single sperm to make an embryo. After three days in culture, one cell from each embryo is carefully removed and the embryo put back in culture.

The biopsied cell is then analyzed for either chromosome abnormalities using a panel of chromosome probes or for a single gene specific for a known inheritable genetic disease. Results are available within 24 hours to allow uterine transfer of an unaffected embryo, which is usually done on day 5 following fertilization.

What are the Risks of PGD?

At the Fertility Centers of New England, the chance of pregnancy following PGD is approximately 35%. PGD does not appear to adversely affect pregnancy once implantation has occurred. The error rate of PGD is between 3% and 8%. Therefore, prenatal diagnosis is encouraged either using chorionic villus (CVS) sampling or amniocentesis to confirm the diagnosis of genetically normal pregnancy.

The PGD Team

- Medical Geneticist
- Reproductive Endocrinologist/Fertility Specialist
- Certified Embryologist
- Certified IVF Nurse
- Psychotherapist

At the Fertility Centers of New England, a dedicated team of certified professionals works closely with patients to insure their complete understanding of the procedures and their expected outcomes as part of our patient-centered philosophy.

Genetic counseling is provided to all patients having PGD at the Fertility Centers of New England by our Medical Geneticist who is certified in Medical Genetics.

The medical and surgical management of all aspects of IVF is under the direction of a Reproductive Endocrinologist/Infertility Specialist certified by the American Board of Obstetrics and Gynecology and facilitated by our certified IVF Nurses.

Certified embryologists who have the most experience in New England in performing these procedures perform all embryology procedures, including embryo cell biopsies.

At the Fertility Centers of New England, a licensed Psychotherapist is also available to assist our patients.

***Fertility Centers of New England,
Where Care Centers on You.***



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Preimplantation Genetic Diagnosis (PGD) Program



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What Disorders Can Be Detected by PGD?

Any genetic disorder for which either the individual associated gene or chromosome is known can be detected using PGD.

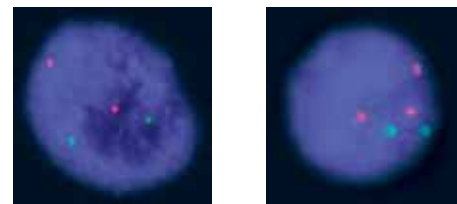
Disorders attributed to single gene abnormalities detected by PGD include:

- Cystic Fibrosis
- Tay-Sachs
- Beta-thalassemia
- Sickle-cell Anemia
- Gaucher's Disease
- Duchenne Muscular Dystrophy
- Spinal Muscular Dystrophy
- Myotonic Dystrophy
- Lesch-Nyhan Syndrome
- Hemophilia A and B
- Fragile X Syndrome
- Klinefelter's Syndrome

This is a partial list of over 200 inheritable genetic disorders for which the gene is known and can be detected by PGD.

Chromosomal Abnormalities Detected by PGD

- Down's Syndrome (Trisomy 21)
- Turner's Syndrome (45, X)
- Routine panel for chromosomes X, Y, 22, 21, 18, 17, 16, 15, 13
- Any of the 23 chromosomes to a maximum number of nine
- Known translocations or inversions



Left: Normal cell from an embryo shows two chromosomes 18 (in green) and two chromosomes 21 (in red).

Right: Cell from a trisomy 21 embryo indicates Down's Syndrome (note three red cells).

Where Care Centers on You.

At the Fertility Centers of New England, we understand that the path to parenthood can be filled with uncertainty. We have helped thousands of couples overcome the physical, emotional, and social challenges of infertility. We'll provide the advanced clinical treatments you need. And the deeply personal care you deserve.

The Fertility Centers of New England has the largest and most experienced PGD program in New England performing over 20 such cases per month. Our pregnancy rate of 36% following PGD is well above most other centers worldwide.

What is PGD?

PGD is a technique used in conjunction with in vitro fertilization (IVF) to test embryos for either chromosomal abnormalities or inherited genetic diseases prior to uterine transfer and thus before the establishment of pregnancy. Using this technique, at risk couples can avoid the birth of an affected child and the potential, difficult decision to terminate a pregnancy.

Who Should Have PGD?

PGD should be considered for those with the following:

Genetic Diseases Individuals at risk of passing on a genetically inherited disease for which the single gene abnormality responsible for this disease is known. PGD allows the selection of embryos that do not have the disease in question.

Known Chromosomal Abnormalities Individuals with either a known chromosomal abnormality themselves (balanced translocation, inversion, mosaicism) which may increase their risk of a chromosomally abnormal pregnancy, or individuals who have had a previous pregnancy that was chromosomally abnormal (Down's Syndrome, Turner's Syndrome) may also be candidates for PGD.

Those Needing HLA-Matched Cells PGD can determine genetically matched cells that are needed to save the life of a prior baby born with an abnormality, allowing HLA-matched cells to be obtained at birth from the cord blood for transfusion into the affected child.

Recurrent Pregnancy Loss Approximately 60% of miscarriages are chromosomally abnormal referred to as aneuploidies. The majority of these aneuploid pregnancies are attributable to abnormalities in one of nine chromosomes. PGD may lower the risk of pregnancy loss by as much as half through the selection of embryos without one of these chromosomal abnormalities associated with pregnancy loss.

Failed IVF Cycles Selection of embryos without the most common chromosomal abnormalities associated with failed IVF cycles may enable a successful pregnancy.

Women 38 Years of Age or Older Approximately 60% of eggs are chromosomally abnormal in a woman 38 years of age, while approximately 70% may be abnormal by 40 years of age. PGD offers the potential of selecting embryos without the most common chromosomal abnormalities occurring in the eggs of women over 38 years of age.

