In Vitro Fertilization

Process, Risk, and Consent

In Vitro Fertilization (IVF) is the process of creating embryos by removing oocytes (eggs) from a woman's ovaries and inseminating them with sperm provided by her partner or from a sperm donor. The embryo(s) can then be used to achieve a pregnancy by transferring them into her uterus or into a gestational carrier. Embryo(s) can also be frozen for use at a later time.

Date: _____

Patient Last Name:	First Name:
MRN:	Gender – M/F (Circle One)
Partner Last Name:	First Name:
MRN:	Gender – M/F (Circle One)

In Vitro Fertilization Process & Risks

An IVF cycle typically includes the following steps or procedures:

- Taking medicine to grow several eggs at once.
- Removing the eggs from the ovaries.
- Fertilizing eggs by mixing eggs and sperm together.
- Growing fertilized eggs (embryos) in an embryology lab.
- Placement ("transfer") of one or more embryo(s) into the uterus.
- Taking hormone medications to help support a pregnancy.

Sometimes, other IVF steps may be included:

- Injecting a single sperm indirectly into an egg, intracytoplasmic sperm injection (ICSI).
- Cryopreservation (freezing) of eggs or embryo(s) that are not transferred into the uterus.
- Genetic testing of the embryo(s) to screen for correct number of chromosomes, preimplantation genetic testing-aneuploidy (PGT-A) or for specific genetic disorders, preimplantation genetic testing-monogenic (PGT-M).
- Assisted Hatching

Medications for IVF Treatment

- **The success of IVF largely depends on growing several eggs at once.**
- **To achieve this, injections of natural hormones, FSH and/or LH (gonadotropins) are often required.**
- **Other medications are necessary to prevent premature ovulation from occurring.**
- **Sometimes the ovaries respond too strongly—and sometimes not enough.**

Here are some medicines commonly used in an IVF cycle:

- ***Gonadotropins: e.g.*** (Follistim®, Gonal-F®, Menopur®, low dose hCG or human chorionic gonadotropin): These are natural hormones that help stimulate the ovary to grow several eggs over 10 or more days. These injections may be given either subcutaneously (just under the skin) or intramuscularly (directly into muscle).

  Injecting any medicine can lead to bruising, redness, swelling, or pain at the injection site. In rare cases, there can be an allergic reaction. Some women have bloating or minor discomfort as the ovaries become enlarged. About 1% of women will develop Ovarian Hyperstimulation Syndrome (OHSS) [further explained in "Risks to the Woman" section]. Other side effects can include headaches, weight gain, fatigue, mood swings, nausea, or blood clots.

  At times, gonadotropins injections may not cause multiple eggs to grow in women who were diagnosed with diminished ovarian reserve (low egg count) prior to an IVF cycle. This can lead to few or even zero eggs being collected at the time of the egg retrieval procedure. In some cases, an IVF cycle may be canceled before an egg retrieval is attempted due to poor ovarian response.

- ***GnRH-agonists (leuprolide acetate) (Lupron®):*** It This is an injection that comes in two forms. One is a short-acting form that needs to be injected daily. The other is long-acting and lasts for 1-3 months. Leuprolide is given to help prevent eggs from being released (ovulated) prior to the egg retrieval procedure. Leuprolide can also be used to start the growth of eggs or trigger the final stages of their growth. Although Leuprolide is approved by the FDA (U.S. Food and Drug Administration), it has not been approved for use in IVF. It has been extensively

studied in IVF patients for over 20 years. Some side effects of Leuprolide include hot flashes, vaginal dryness, nausea, headaches, and muscle aches. Some women may retain fluid or feel depressed, and long-term use can result in bone loss. Since Leuprolide is taken as an injection, skin reactions can also occur at the injection site. No long term or serious side effects are known. If Leuprolide is given in a cycle after ovulation has occurred, you should use condoms for birth control in that month. Leuprolide has not been linked with any birth defects, but it should be stopped if you become pregnant while taking it.

- ***GnRH-antagonists (ganirelix acetate or cetrorelix acetate)*** (Ganirelix®, Cetrotide®): These drugs are used to prevent premature ovulation. Side effects may include stomach pain, nausea, headaches, and skin reactions at the injection site.

- ***Human chorionic gonadotropin (hCG)*** (Profasi®, Novarel®, Pregnyl®, Ovidrel®): hCG is a natural hormone used in IVF to help the eggs mature in preparation for the egg retrieval procedure. This drug **MUST** be taken at the correct time to assure your eggs mature. Side effects can include breast tenderness, bloating, pelvic pain and skin reactions at the injection site.

- ***Progesterone:*** This hormone is produced by the ovaries after ovulation. In some women the ovaries will not produce enough of progesterone to support a pregnancy after an egg retrieval. Adding progesterone improves your chances of getting pregnant and staying pregnant. Progesterone can be taken as a daily intramuscular injection (most commonly in the hip). It can also be taken by placing a suppository (Endometrin®, Crinone®, Prochieve®, Prometrium®, or pharmacist-compounded suppositories) directly into the vagina up to three times per day beginning after the egg retrieval. Progesterone will be continued for several weeks after a positive pregnancy test. ***It is very important not to start or stop progesterone until you have been instructed to do so***. Prematurely starting progesterone can lead to failed implantation or freezing embryo(s) instead of transferring them. Stopping progesterone too early during pregnancy can result in miscarriage.

  Progesterone has not been shown to cause birth defects. Side effects of progesterone can include depression, sleepiness, or an allergic reaction. The intra-muscular injection can cause infection or pain at the injection site.

- ***Oral contraceptive pills (birth control pills):*** Your doctor may ask you to take birth control pills prior to starting hormone stimulation injections. This is done to slow down hormone production or to schedule a treatment cycle. Side effects include vaginal bleeding, headache, breast tenderness, nausea, and swelling. There is also a small risk of blood clots and stroke.

- ***Estrace:*** This is an oral medication used in some regimens to help prevent development of a cyst or in hopes of priming the ovaries prior to starting injections. Side effects include nausea, bloating, breast tenderness, headaches, and blood clots.

- ***Growth Hormone:*** Is used in some regimens to improve embryo quality. It is given as a daily injection and may cause some irritation at the injection site.

- ***Testosterone or DHEA:*** These hormones can be used in some regimens to increase the number of eggs. It is often given as a pill, patch, or cream, for one to three months before ovarian stimulation begins. Side effects may include headache, acne, anxiety, polycythemia (elevated blood count), mood swings, hyperlipidemia, breast pain. Rare side effects include blood clots. These medications are stopped during pregnancy due to risk of harming a female fetus.

- ***Clomid or Letrozole:*** These are oral medications that are used in some treatments to increase the number of growing eggs and/or reduce the estrogen level in the bloodstream. Short-term side effects in some women include headache, hot flashes, or increased moodiness.

- ***Coenzyme Q10:*** This supplement is sometimes used to improve egg quality and is taken by mouth for one to three months before ovarian stimulation begins.

- ***Other medications:*** Antibiotics may be given for a short time during the treatment cycle. This may reduce the risk of infection from egg retrieval or embryo transfer. Antibiotic use may cause a few side effects, including vaginal yeast infection, nausea, vomiting, diarrhea, rashes, sensitivity to the sun, or allergic reactions. Your doctor may suggest using anti-anxiety medications or a muscle relaxant prior to the embryo transfer. The most common side effect of these medicines is drowsiness. Other medicines such as steroids, heparin, low molecular weight heparin, or aspirin may also be recommended.

Ovarian Stimulation

Gonadotropins are used to stimulate the ovary to grow several eggs at once. Over an average of 10 days of stimulation, they grow to full size. It is important to monitor the response of your ovaries by ultrasound and bloodwork. A typical pattern of office visits is shown below.

Preparatory Cycle	*Ovarian Stimulation Cycle*	*Egg Retrieval*

Office visits: ⇧ ⇧ ⇧ ⇧ ⇧

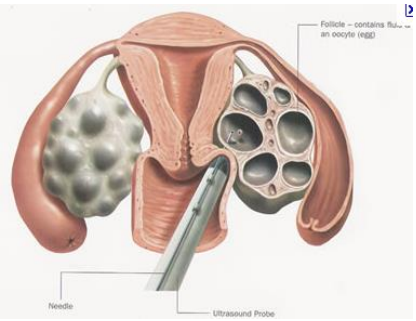
This process does not cause you to run out of eggs or go into menopause faster. Your body has preselected the eggs available to respond to stimulation months in advance. The eggs that grow were already 'linked' to this cycle and would have been lost anyway.

As the follicles grow and the ovary enlarges, it pulls on the ligament that holds the ovary in place. Within that ligament is the blood supply to the ovary. There is a possibility of the ovary to twist around the ligament (ovarian torsion), which can be very painful, require to surgery to repair, and may cause permanent ovarian damage or death due to disruption of its blood supply. Avoid strenuous activity, including running, horseback riding, intercourse, and heavy lifting from initiation of ovarian stimulation until the following menses or pregnancy test, whichever comes first.

Transvaginal Oocyte (Egg) Retrieval

- **Eggs are removed from the ovary with a needle under ultrasound guidance.**
- **General anesthesia is administered for patient comfort.**
- **Complications such as injury and infection are rare.**

Oocyte retrieval is the removal of eggs from the ovary. Before removing the eggs, the doctor will look at your ovaries using an ultrasound probe placed into the vagina. A long thin needle visible on ultrasound is attached to the ultrasound probe. Guiding the needle into the ovaries, the doctor will draw out fluid, eggs, and egg-supporting cells. Very rarely, the ovaries cannot be reached through the vagina. In that case, the eggs might be removed by guiding the needle through the belly (transabdominally), or by inserting a camera (laparoscope) through the belly button to reach the eggs. Anesthesia is generally used to reduce or eliminate pain during the procedure.



Risks of egg retrieval:

Infection: Bacteria from the vagina may be transferred into the pelvis or ovaries by the needle. This can cause an infection of nearby organs. The incidence of infection after egg

retrieval is very small (less than 0.1%). If an infection occurs, you will be given antibiotics. Severe infections sometimes require surgery to remove infected tissue. Infections can reduce your chance of getting pregnant in the future. Antibiotics may be used before the egg retrieval to help reduce the chance of infection.

Bleeding: The needle passes through the vaginal wall and into the ovary to obtain the eggs. Both structures contain blood vessels. There are also other blood vessels nearby. This means that small amounts of blood may be lost while removing the eggs. The risk of major bleeding is small (< 0.1%) and can lead to death if undetected. Major bleeding may require surgery and could result in the removal of one or both ovaries. A blood transfusion is rarely necessary.

Trauma: Nearby organs can be damaged during the egg retrieval. Organs including the intestines, appendix, bladder, ureters, and ovaries. The risk of damage during egg retrieval is very low. However, in rare cases, surgery may be required to fix or remove damaged organ(s).

Anesthesia: The use of anesthesia while removing eggs can cause an allergic reaction, nausea, vomiting or low blood pressure. In rare cases, use of anesthesia has resulted in death.

***Failure*:** In some cases, an egg retrieval results in no eggs being recovered. In other cases, all the eggs are abnormal, or are poor quality. These situations can prevent you from having a successful pregnancy.

***Pregnancy*:** It is possible to become pregnant following an egg retrieval because 100% of the egg may not be collected. Several eggs may be left behind increasing the risk for pregnancy with multiples. Also, because an embryo transfer occurs inside the uterus, a preexisting pregnancy may be disrupted. To reduce these risks, abstain from sexual intercourse or use barrier forms of contraception following your stimulation.

In vitro fertilization and embryo culture

- **Sperm and eggs are placed together in a petri dish.**
- **The dish is kept under special conditions to promote fertilization.**
- **The fluid in the dish (culture medium) helps the sperm fertilize the eggs and helps embryos grow.**
- **An embryologist chooses the best quality embryo(s) to transfer.**

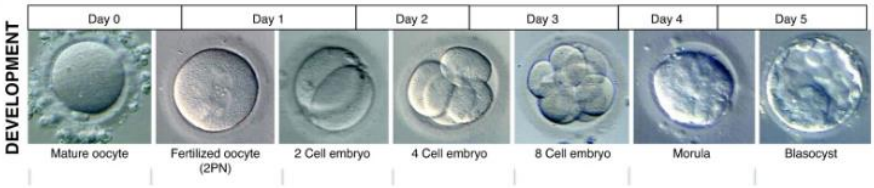
After eggs are retrieved, they are transferred to the embryology laboratory where they are kept in special conditions that support their growth. The eggs are placed in small dishes or tubes containing "culture medium", which is a fluid that provides embryo(s) with the nutrients they need to grow. The eggs are then placed into incubators, which keep the temperature, humidity, gas, and light at just the right levels.

A few hours after the eggs are retrieved, sperm are added to culture medium (conventional insemination). In some cases, an individual sperm is injected directly into a mature egg in a technique called Intracytoplasmic Sperm Injection (ICSI) (see "ICSI" section). The eggs are then returned to the incubator, where they develop into embryos and continue to grow. The embryos are inspected at intervals over the next few days, to check their progress, though they may not be assessed at every stage.

Embryo development usually proceeds along the following schedule but may not be assessed at every interval listed below:

- Day 0: Eggs are retrieved, checked for maturity and mixed with sperm.

- *Day 1*: This is the day that the eggs and sperm come together, and we can check for signs of fertilization. At this stage, the normally fertilized egg is still a single cell with 2 nuclei, called a 2PN or zygote.
- *Day 2*: Normal embryos will divide into 2 to 4 cells. (Assessment not performed)
- *Day 3*: Normally developing embryos will continue to divide and contain 4 to 8 cells. (Assessment not performed)
- *Day 4*: The cells of the embryo begin to merge to form a solid ball of cells called a morula (named because it looks like a mulberry). (Assessment not performed)
- *Day 5 & 6*: Blastocyst stage, have 100 cells or more. They have an inner fluid-filled cavity and a small cluster of cells on the inside called the inner cell mass.



It is important to understand that many eggs, sperm, and embryos may be abnormal. This means that some eggs will not fertilize, and some embryos may not develop normally in the lab. Some embryos may stop growing. Even if your embryo(s) develop normally in the lab, they still may not

lead to a pregnancy. Some embryos will be genetically abnormal. Testing for genetic abnormalities is possible ("preimplantation genetic testing, or "PGT"). When PGT is not performed, the best embryo(s) for transfer are selected by visual grading of the way they look under the microscope.

We take great care of all eggs, sperm, and embryos in the lab. Still, there are many reasons why pregnancy may not occur with IVF:

- The eggs may fail to fertilize.
- One or more eggs may fertilize abnormally. This can lead to an abnormal number of chromosomes in the embryo. These abnormal embryos cannot be transferred.
- The embryos may not develop normally or may stop developing.
- Rarely, the eggs, sperm, or embryos may be harmed by contact with microorganisms in the lab.
- Despite having backup systems in place, lab equipment may fail, or power may be lost. Both can lead to the destruction of eggs, sperm, and embryos.
- A lab accident or human error can happen and can lead to embryo loss.
- Other unplanned events may prevent any step of the process from being performed or prevent a pregnancy from occurring.
- Hurricanes, floods, or other "natural events," including bombings or other terrorist acts, could destroy the laboratory or its contents, including any sperm, eggs, or embryos.

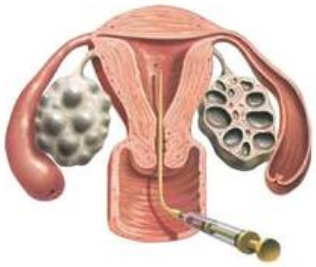
Quality control is the process of running tests to ensure that lab conditions are the best they can be to help embryos grow. Systems in the lab are frequently checked to make sure conditions are optimal. Sometimes immature or abnormal eggs, sperm or embryos that have not developed normally, can be used for quality control checks before they are discarded. None of the material that would normally be discarded--blood, tissues eggs, sperm or embryos--will be used to create a pregnancy or a cell line.

Embryo Transfer

- **After a few days of development, an embryo transfer can occur using the best quality embryo(s).**
- **The number of embryos transferred impacts the pregnancy rate and the risk of twins or other multiple pregnancies.**

- **The woman's age and the quality of the developing embryo(s) have the greatest effect on pregnancy outcome.**
- **Embryos are placed in the uterus using a thin tube (transfer catheter).**
- **Any embryos that developed normally but were not transferred can be frozen for future use.**

After a few days of development an embryo transfer may take place, or the normally developed embryo(s) are frozen for future transfer. One or more embryos are placed in the uterus using a thin tube called a transfer catheter. Ultrasound is used to help guide the catheter and confirm correct placement through the cervix and into the uterus. The risks of embryo transfer include infection, loss of the embryo(s), or damage to the embryo(s). Not all embryos lead to pregnancy, and not all pregnancies are normal or grow in the correct place – tubal (ectopic) pregnancies may occur.



The number of embryos to transfer is an important decision. A woman's age and the quality of the embryo affect both the chance for pregnancy as well as the chance for multiple embryos to implant. If multiple embryos implant, a multiple pregnancy (twins, triplets, or more) will result. In some cases, one embryo can split into two (identical twins) after transfer. Before the transfer, it is critical to discuss with your doctor how many embryos to transfer and the risks of a multiple pregnancy.

Guidelines for the maximum number of embryos to transfer are given below.

RECOMMENDED LIMITS ON THE NUMBER OF EMBRYOS TO TRANSFER

Age:	<35	35-37	38-40	41-42	> 42
Blastocyst-stage embryos					
• **Normal # chromosomes**	1	1	1	1	1
• **From Egg Donor <35**	1	1	1	1	1
• **Other favorable***	1	1	≤2	≤3	Not known
• **All others**	≤2	≤2	≤3	≤3	Not known

*Other favorable = any ONE of these criteria: Fresh cycle: expectation of 1 or more high-quality embryos available for cryopreservation or previous live birth after an IVF cycle; FET cycle: availability of vitrified day-5 or day-6 blastocysts, Euploid embryos, 1st FET cycle, or previous live birth after an IVF cycle.

Hormonal support of the uterine lining

- **For pregnancy to occur, the embryo(s) must attach to the lining of the uterus. This process is called *implantation*.**
- **Implantation has a better chance of happening if you take progesterone hormone.**

The most important hormones to support implantation are progesterone and estrogen. Normally, the ovaries make these hormones to support pregnancy. However, in IVF cycles, retrieving the eggs causes reduced production of progesterone by the ovaries. Therefore, in most cases, progesterone is routinely given. Progesterone is most commonly taken as an injection or as a vaginal suppository. Progesterone is continued for several weeks to help support the pregnancy (please see "medication" section).

Additional Elements

Intracytoplasmic Sperm Injection (ICSI)

- **In some cases, fertilization will not happen when eggs and sperm are placed together in a lab dish (conventional insemination).**
- **Injecting a sperm into each egg (ICSI) can help fertilization occur.**
- **ICSI does not guarantee normal fertilization.**

- **There may be an increased risk of genetic problems in children born from ICSI.**
- **ICSI will not improve any defects in the eggs.**

ICSI involves the direct injection of a single sperm into the interior of an egg using a thin glass needle. This lets the sperm enter the egg without having to break through the hard shell around the egg (*zona pellucida*). For it to work, the sperm must be healthy, and the egg must be mature. ICSI is a good choice when the sperm count, movement, or quality is poor. Embryos created utilizing ICSI have similar live birth rates to embryos created using conventional insemination from men with normal sperm counts.

ICSI may be associated with a slightly higher risk of birth defects. It is hard to know if the increased risk is due to the ICSI procedure itself or to defects in the sperm. The risk of birth defects after ICSI is still quite small (4.2% compared with 3% in children conceived naturally). Experts are still debating the impact of ICSI on the mental and physical development of children. Most recent studies have not detected any differences in the development of children born after ICSI, regular IVF, or natural conception.

Children conceived by ICSI have slightly more problems with their sex chromosomes (the X and Y chromosomes) than children conceived by IVF alone, but only by a very small margin (0.8% to 1.0% for ICSI pregnancies compared to 0.2% for IVF pregnancies). The reason for the difference is not clear. It may be caused by the ICSI procedure itself, or by the father. Men with sperm problems such as very low count and low motility are more likely to have genetic abnormalities. They often produce sperm with abnormal chromosomes, especially with abnormal sex chromosomes (X and Y). If sperm with abnormal chromosomes produce pregnancies, the pregnancies will likely carry the same defects. Translocations (a re-arrangement of chromosomes that can cause miscarriage or birth defects) may be more common after ICSI.

Some men with extremely low sperm count (oligozoospermia) or no sperm (azoospermia) have small deletions on their Y chromosomes. In some of these cases, ICSI can be performed to fertilize eggs after obtaining sperm directly from the testicle. Any sperm containing a Y chromosome microdeletion will pass on the deletion to any male child. These male children will also carry the microdeletion and may be infertile. A Y chromosome microdeletion can often, but not always, be detected by a blood test. This is because the chromosomes in the sperm may not always be the same as those seen when tested in the blood.

Some men are infertile because the tubes connecting the testes to the penis did not form correctly (congenital bilateral absence of the vas deferens [CBAVD]). These men can still father children, but sperm must be taken directly from the testicle(s) or the tubes next to them. This sperm is then used in ICSI. These men may have a mild form of cystic fibrosis (CF), which can be passed on to their children. Men with CBAVD and their partners should be tested for CF gene mutations before treatment. However, some CF mutations may not be detected by current tests, so that some parents who test negative for CF mutations can still have children affected by CF.

Preimplantation Genetic Testing (PGT)

CONSENT FOR TROPHECTODERM BIOPSY OF BLASTOCYTS FOR PREIMPLANTATION GENETIC TESTING

Purpose

There are several reasons that some patients choose to have PGT for their embryos. Current reasons include:

- determining whether the embryo has the incorrect number of chromosomes or family balancing to determine the gender of the embryo ("PGT-A").
- determining whether the embryo has a structural rearrangement of its chromosomal material, i.e., translocation or inversions of chromosomes ("PGT-SR").
- determining whether the embryo has a specific disease-causing mutation ("PGT-M")

Background

PGT does not guarantee that a pregnancy will occur, even if embryo testing is normal or balanced. Factors other than the genes influence pregnancy rates. There is always a possibility that after PGT, NO normal embryos are available to transfer.

Screening the embryonic chromosomes, or testing for one specific genetic disease, does not guarantee that the embryo will be healthy and free of other disorders. For example, some common disorders that cannot be identified with PGT are autism and diabetes. Some developmental birth defects can also occur even if chromosome screening is normal. An example of this would be a cleft lip or palate (failure of the lip and upper mouth to join properly).

Biopsy Procedure

1) **Trophectoderm biopsy and cell preparation**

The trophectoderm biopsy procedure, performed at Dallas IVF Laboratory, is initiated when embryos reach the 5th or 6th day of development post fertilization. Assisted hatching (AH) of the zona pellucida (shell) is performed on day 3 of embryo development as standard operating procedure for all embryos with planned PGT. AH creates an opening in shell to allow cells to herniate out of the zona pellucida later in development (days 5 and 6), allowing for ease of access to cells during the embryo biopsy procedure. When embryos develop into fair or high-quality blastocysts, a few cells ($\leq$10) are removed from the trophectoderm, the group of cells differentiated to develop into non-fetal components of the pregnancy such as the placenta. These removed cells are referred to as the "biopsy" and are representative of cells developing in the embryo. Once a biopsy is removed, it is rinsed and transferred into a small test tube. At this stage, the blastocysts are assigned individual numbers, which correspond to their specific biopsy. The blastocysts are cryopreserved immediately after the biopsy procedure and held at the Dallas IVF laboratory. *Biopsy test tubes are shipped to an outside reference laboratory for PGT analysis.*

2) **Risks of embryo biopsy**

Damage: There is a small risk of damage to the embryo. This may result in no healthy embryos available to transfer.

No result. The test may not give a result. Sometimes, there is not enough genetic material retrieved to run the test. It may be possible to repeat the biopsy and try again to test the embryo.

Misdiagnosis: The test may give the wrong result, and say that a normal embryo is actually abnormal, or that an abnormal embryo is actually normal. The accuracy of testing is determined by the off-site laboratory. Most testing is very accurate, so the chance of misdiagnosis is low. Furthermore, since not all embryos are made up of cells with identical genetics ("mosaicism"), it is possible that accurate test result does not reflect the genetics of the entire embryo. Consequently, the current recommendation is to confirm the result in early pregnancy.

No normal embryos: The test may find that none of the embryos are normal, and there may be no embryo transfer procedure. The likelihood that this will happen is influenced by a variety of factors, the most important of which is usually your age. Some embryos will have no diagnosis, due to the loss of biopsied cells, or poor DNA quality (often found in damaged or dying cells). Embryos without a result can still be transferred, but all the possible advantages of PGT will not apply.

Weather/Transport: Once the biopsies are shipped, weather and air travel conditions may delay the receipt of samples. Rarely samples do not arrive in the reference laboratory or are damaged during transport.

3) **Possible Benefits**

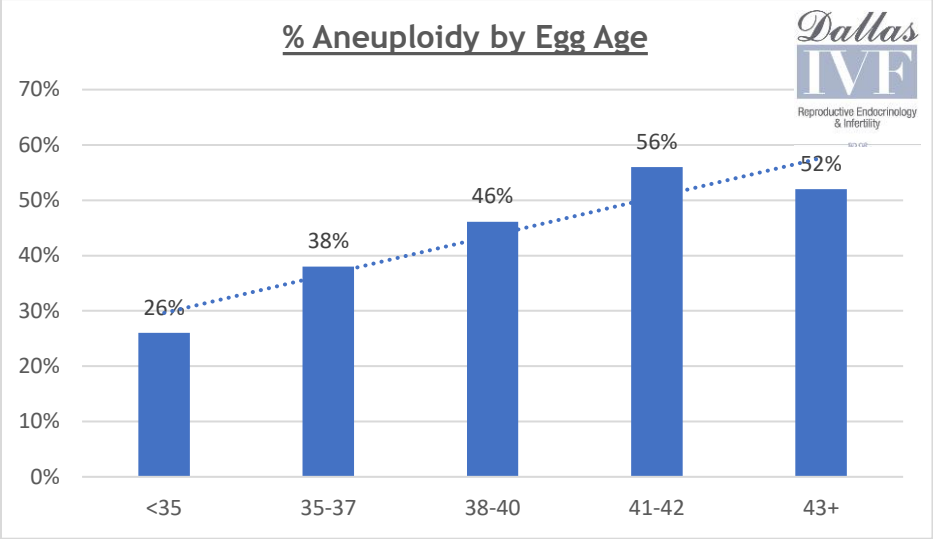
In majority of cases, aneuploid embryos are indistinguishable morphologically and developmentally from chromosomally normal ones. Thus, without genetic testing, an embryologist cannot differentiate normal embryos from aneuploid embryos and you could have aneuploid embryos transferred. Genetic testing of the preimplantation embryo can determine whether the embryo could potentially be affected by a chromosomal abnormality. Therefore, your chance of conceiving

a baby with a chromosomal abnormality will be reduced by more than 90% after PGT. You may be contacted throughout the course of the pregnancy and afterwards about the outcome and to follow the child.

Testing and Screening Methodologies

1) Aneuploidy screening via PGT-A

Normally, there are 23 pairs of chromosomes in each human cell, for a total of 46 chromosomes. Each of these chromosomes has a characteristic appearance and is assigned a number. Twenty-three chromosomes usually come from the oocyte (egg) and 23 chromosomes come from the sperm. Although you and your spouse (or a gamete donor if one is used) are believed to be genetically normal individuals, an abnormal number of chromosomes can result spontaneously during the maturation of your eggs or during the process of embryo division and development. Such numerical abnormalities resulting in extra copies of chromosomes, missing copies of chromosomes, small deletions or duplications in parts of chromosomes are referred to as *aneuploidy*. A Common example of aneuploidy is an extra chromosome number 21 (Down Syndrome or trisomy 21). The rate of aneuploidy is directly related to the age of the egg. The graph below demonstrates the aneuploidy rate observed in embryos from biopsies performed at Dallas IVF.



A total of 819 embryo biopsies were included in the above study performed at Dallas IVF. The numbers at the bottom of the bars represent Egg Age while the percentages on the top of the bars represent the percentage of aneuploid or abnormal biopsies. The dotted line represents a trend line reflecting a positive correlation of egg age and rate of aneuploidy observed in blastocysts.

***2)* Translocation detection via PGT-SR**

Chromosomes are string-like structures found in the center of the cell, the nucleus. Chromosomes carry our inherited information in genes that are made of DNA. During the process of cell division, occasionally chromosomes may become attached to each other, or pieces of different chromosomes may interchange. This is referred to as chromosomal translocation. The change may take place so that there is no extra or missing chromosomal material, or the break in the chromosome may not affect gene function, and there is no effect on the individual. In this case, the genome is considered to be "balanced"; if there is extra or missing chromosomal material, the genome is "unbalanced". Individuals with balanced translocations typically have no medical problems, however can experience reduced fertility in the form of recurrent miscarriages due to unbalanced chromosomal material in the embryos. The presence of an unbalanced translocation can lead failed implantation of an embryo, a miscarriage during pregnancy, or a child being born with mental and physical problems. Therefore, individuals with a translocation may experience multiple pregnancy losses or have a child affected with physical and cognitive disorders that may or may not be lethal.

There are two types of translocations: reciprocal and Robertsonian. Reciprocal translocations involve any 2 chromosomes. Breaks occur in the chromosomes allowing pieces to be exchanged between them. Approximately 1 in 625 individuals has a reciprocal translocation. Approximately 1 in 900 individuals has a Robertsonian translocation. These translocations involve chromosomes 13, 14, 15, 21 and 22. Robertsonian translocations result from breaks in the middle of the chromosomes and subsequent fusion of 2 bottoms of the chromosomes.

3) Single Gene Diagnosis via PGT-M

Many genetic diseases are caused by mutations or changes in the individual genes within chromosomes. The three most common types of single gene disorders are:

a) **Recessive Disorders** – Every person has recessive genes. If an individual has a recessive gene for a disease, such as Cystic Fibrosis, they are a carrier for the disease. Although individuals carrying a recessive trait may not express the disease, they can pass it on to their offspring. If the man and the woman are both carriers for the same disease, there is a 25% chance that their offspring will have the full disease, and a 50% chance that they will be a carrier. Different recessive disorders are more common in different ethnic groups. For instance, Cystic Fibrosis (CF) is more common in Caucasians and Sickle Cell disease is more common in African Americans.

b) **Dominant Disorders** – If either parent has a dominant gene disorder, each of his or her children have a 50% chance of having the disease. One of the more common dominant disorders is polycystic kidney disease (PKD).

c) **X-linked disorders** –These disorders depend upon the X chromosome. A woman normally has two X chromosomes (XX). An X-linked disorder can occur when one or both X chromosomes carry a disorder. If the woman only has one affected X chromosome, she may not express the disease. However, she has 50% chance of passing on that X-linked trait to her offspring. A male child will have a 50% chance of inheriting and expressing the disease whereas a female child will have a 50% chance of being a carrier and not necessarily expressing the disease.

Analysis

A modified FAST-SeqS next generation sequencing and associated bioinformatics pipeline validated for accurate detection of whole chromosome number, segmental (≥ 10 Mb) aneuploidy technique is utilized by most of the reference laboratories to analyze biopsy samples. The biopsy cells are destroyed during this process. Therefore, they cannot be used for another purpose or returned to the embryo. This analysis requires up to twenty-four hours from receipt to complete and the results are available within 5-7 business days.

Limitations

PGT is not 100% sensitive and specific and is intended for screening to identify the majority of embryos with a significant gain or loss of chromosomal material. False positive or negative errors may occur for reasons including but not limited to: sample mis-identification, technical problems, interfering substances, gain or loss of chromosomal material beyond the detection limit of this assay, sample contamination and mosaicism (if the cells analyzed are not representative of the inner cell mass of the embryo, or there is a gain or loss of chromosome material that is not present in all cells of the biopsy sample). Validation studies for most PGT methods show that this assay achieve an accuracy of > 97%, specificity of > 97% and analytic sensitivity of > 95% for the detection of whole chromosome gains or losses and for detection of partial chromosome gains or losses that are ≥ 10Mb in size. While the assay is highly accurate, results may be impacted by artifacts present in the embryo biopsy samples. Because PGT is a screening tool, follow up prenatal diagnosis using either NIPT (non-invasive prenatal test) as early as 9 weeks, chorionic villus sampling at 10-12 weeks or amniocentesis at 15-18 weeks should be considered to verify the chromosome status of an ongoing pregnancy.

Alternatives

The alternative to participation in this study is to attempt to conceive a pregnancy undergoing IVF without genetic testing. Alternatives to PGT during pregnancy include standard prenatal testing for

abnormalities (NIPT, chorionic villous sampling, amniocentesis and ultrasound examination). You are not obliged to undergo PGT even if your physician recommends it. Prenatal testing becoming pregnant is strongly recommended. The risks, benefits and alternatives of this testing should be discussed thoroughly with your genetic counselor or physicians. If you wish to be referred to a genetic counselor, please communicate this to your physician. ***Although these tests may serve as alternatives to PGT, PGT is not a substitute for routine prenatal testing.***

Please make the appropriate selection below *(check only one box)*:

☐ **This portion of the consent is not applicable to us. We elect not to have PGT performed.**

--or--

☐ **We wish to proceed with PGT using the recommended method of analysis of cells biopsied at the blastocyst stage. We understand that PGT has benefits and risks, some of which may be unknown at this time.**

We also understand that undergoing PGT for aneuploidy (PGT-A) *does not eliminate* the need for standard prenatal testing such as NIPT, chorionic villous sampling or amniocentesis. The need for these tests *remains the same* whether or not PGT-A is performed. We understand that if we have questions about NIPT, CVS or amniocentesis we may ask our physician, obstetrician or we may request a referral to a genetic counselor.

CONSENT TO DISCARD ABNORMAL EMBRYOS

We understand that by electing PGT, some or all our embryos may come back chromosomally abnormal and cannot be used for transfer. ***Abnormal embryos are defined as: but are not limited to, aneuploidy of the chromosome, deletions or duplications in parts of chromosomes, uni-parental disomy or affected embryos by single gene disorders.***

- We agree to give Dallas IVF permission to discard any genetically abnormal embryos on our behalf.

INITIALS REQUIRED _____ /_____

We have been given an opportunity to ask questions about the PGT procedure and the contents of this portion of the consent form. If we think of additional questions, we may contact our physician, genetic counselor or nurse.

_____ _____

Patient Signature Date

_____ _____

Partner Signature Date

_____ _____

Witness' Signature Date

Assisted Hatching

- **Assisted hatching involves creating an opening in the outer shell (zona pellucida) that surrounds the embryo.**
- **Hatching may make it easier for embryos to be released from the shell and implant in the uterus.**

The cells that make up the early embryo are coated with a membrane shell called the zona pellucida. Normally, as the embryo grows, this shell melts away allowing the embryo to be released or "hatch." Only after hatching can the embryo implant in the uterus for the pregnancy to continue.

Assisted hatching makes it easier for the embryo to escape the shell. This is done in the embryology lab, by creating an opening in the shell with a needle, a laser, or with chemicals. The procedure is usually done on the day of transfer, before putting the embryos into the transfer catheter.

Some fertility centers use assisted hatching frequently because of the belief that it improves implantation and birth rates. However, there is insufficient evidence for this. In most cases, assisted hatching is believed to be helpful in women who are 38 years old or older at the time their eggs are retrieved. Other possible indications for assisted hatching are in women who failed to get pregnant in a previous IVF cycle, or if the shell around the embryo is unusually thick. The thickness of the shell is evaluated on all embryos before embryo transfer.

There are some risks associated with assisted hatching. Very rarely, the embryo can be damaged, lose cells, or even be destroyed. There is also an increased chance of having a high-risk pregnancy with identical (monozygotic) twins if assisted hatching is performed on cleavage stage (Day 3) embryos. There may also be other risks that are not yet known.

Cryopreservation

- **Freezing of eggs, sperm and embryos provides other chances for pregnancy in the future.**
- **Frozen eggs, sperm and embryos do not always survive the process of freezing and thawing.**
- **Freezing of eggs before fertilization has lower pregnancy success post warming compared to frozen embryos.**
- **Ethical and legal questions can arise when couples separate or divorce. It is vital to agree on what will be done with remaining eggs, sperm or embryos prior to creating them.**
- **A person or couple with frozen eggs, sperm or embryos MUST be in touch with Dallas IVF once a year.**
- **There are yearly fees for keeping eggs, sperm or embryos frozen.**

Sometimes there are normally developing embryos left after embryo transfer. Additional normal-appearing embryos can be frozen for future use. In some cases, it may be planned for all embryos from an IVF cycle to be frozen (for example, when PGT is used). On the other hand, some women may wish to freeze some or all the eggs retrieved because they are not ready to conceive now, do not wish to create too many embryos at a time, or because they are planning to have therapy such as cancer treatment that could damage their eggs.

Benefits of freezing:

- Potentially avoids additional ovarian stimulation if you need additional eggs or embryos in the future.
- Allows transfer of fewer embryos in the fresh cycle and keep the other embryos for a frozen cycle. This can reduce the risk of a multiple pregnancy (twins, triplets, or greater).
- May minimize risk of over-stimulation of the ovaries by freezing all embryos in the initial cycle.
- Allows you to freeze embryos while waiting for test results from PGT or PGD.
- Potentially protects your future fertility if at risk because of surgery or other treatments such as cancer therapy.

There are different ways to freeze embryos. The most common are "slow" freezing and "rapid" freezing (*vitrification*). You should know that embryos do not always survive the freezing and thawing process. There is always a risk that no embryos will survive. If this happens, the transfer will have to be cancelled.

Studies of animals and humans indicate that children born from frozen embryo cycles do not have any greater chance of birth defects than children born after fresh embryo transfers. However, until very large numbers of children have been born from frozen embryos, it is not possible to be certain that there are no increased risks in humans.

If you choose to freeze eggs or embryos, you MUST complete the Disposition of Eggs or Disposition of Embryos statement before freezing. This statement must also be notarized. The statement explains the choices you have for disposing of the eggs or embryos in a variety of situations that may arise. You can submit a new statement later if you desire to change your choices. For frozen embryos, any change requires that both parties — you and your partner-- agree in writing to the change. Be sure to let us now if you change your address. You must also pay storage fees as they come due.

Risks to the Woman

Ovarian Hyperstimulation Syndrome (OHSS)

This is the most severe side effect of stimulating the ovaries. Signs of OHSS include increased ovarian size, nausea, vomiting, and a buildup of fluid in the stomach. You may also have trouble breathing. In some cases, OHSS increases the level of red blood cells, and causes kidney and liver problems. In the most severe cases, it can cause blood clots, kidney failure, or death. All these complications occur very rarely (in only 0.2% of all treatment cycles).

OHSS occurs at two stages:

- early, 1 to 5 days after egg retrieval (largely due to the hCG trigger)
- late, 10 to 15 days after retrieval

The risk of severe problems from OHSS is much higher if you become pregnant, due to the hCG produced by the pregnancy. For this reason, your doctor may suggest that your embryos be frozen for later use instead of transferring them in the fresh cycle. A frozen transfer can be done later, when there is no risk of OHSS.

Cancer

There is some concern that using fertility drugs can cause breast, ovarian, or uterine cancer. These cancers are more common in women with infertility, so it is difficult to know whether the reason for the cancer is infertility or due to the use of the drugs. In current studies that take into consideration the increased risk of cancer due to infertility, there does not seem to be an increased risk of cancer due to the fertility drugs alone. More studies need be done to confirm whether there is an association of cancer with use of fertility drugs. However, some studies have shown an increased risk of ovarian borderline tumors, also known as tumors of low malignant potential. In contrast to invasive ovarian cancer, borderline ovarian tumors are indolent in their disposition, are more likely to be diagnosed in women of reproductive age and have a favorable prognosis with more than 95% of women surviving 5 years beyond diagnosis. More studies need be done to confirm whether there is an association of cancer with use of fertility drugs.

Risks of Pregnancy

Getting pregnant through IVF comes with certain risks. This is partly because women using IVF are often older than those who might get pregnant on their own. In addition, the cause of the infertility itself may be a confounding factor. There may be other risks linked to IVF that are not known at this time. Please see the table below for certain known risks.

Risks of Pregnancy with IVF

	Singleton Pregnancies			Twin Pregnancies		
	Incidence in IVF Pregnancies (%)	Risk compared to other infertile women	Risk compared to fertile women	Incidence in IVF Pregnancies (%)	Risk compared to other infertile women	Risk compared to fertile women
Gestational diabetes	8.2%	No difference	41% higher	10.7%	No difference	23% higher
Pregnancy-induced hypertension	12.6%	No difference	No difference	25.5%	No difference	15% higher
Placental complications	5.2%	95% higher	281% higher	4.9%	No difference	83% higher
Primary cesarean delivery	32.2%	10% higher	20% higher	65.4%	8% higher	17% higher
Low birthweight (<5.5 pounds)	7.7%	21% higher	65% higher	50.4%	No difference	No difference
Preterm birth (<37 weeks gestation	10.3%	26% higher	70% higher	53.8%	No difference	7% higher

In 2015, about 25% of IVF pregnancies were multiple pregnancies (twins, triplets, or greater), of which less than 1% are triplets or more. Identical twins occur in less than 5% of all IVF pregnancies. Identical twins may happen more often after blastocyst (Day 5 or 6) transfers. Multiple pregnancies in general have an increased risk of pregnancy problems. In addition to early delivery, problems include pre-eclampsia (high blood pressure and protein in the urine), eclampsia that can cause seizures and be life threatening, excess bleeding with delivery, diabetes of pregnancy (gestational diabetes), and need for cesarean section. Problems with the placenta (afterbirth) are also more common. Other problems more common with multiple pregnancy include gall bladder problems, skin problems, and the need for extra weight gain.

In IVF, embryos are transferred directly into the uterus. However, tubal, cervical, or abdominal pregnancies can sometimes occur. These abnormal pregnancies may be treated with medication or surgery and cannot safely grow to delivery of a live infant. Abnormal pregnancies within the uterus can also occur.

Risks to Your Baby

- **IVF babies may be at a slightly higher risk for birth defects and genetic defects.**
- **IVF has a greater chance of multiple pregnancy, even when only one embryo is transferred.**
- **The risk associated with a multiple pregnancy is the greatest risk to your baby when using IVF.**

Overall Risks

The first IVF baby was born in 1978. Since then, more than 5 million children around the world have been born through IVF. Studies have shown that these children are quite healthy. In fact, some experts believe having a child through IVF is now just as safe as having a child naturally. Still, one must be careful when making this claim. Infertile couples do not have normal reproductive function. This means that a baby they have through IVF may have more health problems than a baby conceived naturally.

IVF single babies are often born about 2 days earlier than naturally conceived babies. They are about 5% more likely to weigh less than 5 pounds, 8 ounces (2,500 grams) than a naturally conceived single baby. IVF twins are not born earlier or later than naturally conceived twins.

The risks of freezing have been evaluated in animal tests over several generations. Human data has also been evaluated. There is no proof that children born from frozen and thawed embryos or frozen and thawed eggs have more health problems than those born from fresh embryos. Still, it is hard to know for sure if the rate of health problems is the same as the normal rate.

Birth Defects

The risk of birth defects through normal birth is about 4.4 %, and it is about 3% for severe birth defects. In IVF babies, the risk for any birth defect is about 5.3%, while the risk for a severe birth defect is about 3.7%. No higher risk is seen in frozen embryo or donor egg cycles compared to fresh embryo transfer cycles.

Imprinting Disorders. These are rare disorders caused by whether the genes from the mother or the genes from the father are working. Studies do not agree on whether these disorders are associated with IVF. Even if they are, these disorders are extremely rare (1 out of 15,000 people).

Childhood cancers. Most studies do not suggest any extra risk, except for retinoblastoma (a cancer behind the eye). One study did report an increased risk after IVF treatment, but further studies did not find an increased risk.

Infant development. Most studies of long-term developmental outcomes have been reassuring so far. Most children are doing well. However, these studies are hard to do, and they have some limitations. A more recent study using better methods shows an extra risk of cerebral palsy and developmental delay. However, this arose mostly from prematurity and low birth weight that was a result of multiple pregnancy.

Risks of a Multiple Pregnancy

More than 30% of IVF pregnancies are multiple pregnancies (twins, triplets, or greater). Identical twins occur in less than 5% of all IVF pregnancies. Identical twins may happen more often after blastocyst (Day 5) transfers, and with assisted hatching after cleavage stage (Day 3) transfers.

Early delivery accounts for most of the extra problems associated with babies from multiple pregnancies. IVF twins deliver an average of three weeks earlier than IVF single babies, and they weigh about 2 pounds less than IVF single babies. Triplet (and greater) pregnancies deliver before 32 weeks (7 months) in almost half of cases. Fetal growth problems and unequal growth among the fetuses can also result in perinatal illness and death before or shortly after delivery.

Multiple fetuses that share the same placenta, such as most identical twins, have additional risks. Twin-to-twin transfusion syndrome, where the circulation is not equal between the fetuses, may occur in up to 20% of twins who share a placenta. Twins sharing the same placenta have a higher frequency of birth defects compared to twins with two placentas. Death of one fetus in a twin pregnancy after the first trimester is more common with a shared placenta; this may cause harm to the remaining fetus.

Other problems babies can face include cerebral palsy, deafness, retinopathy of prematurity (eye problems that result from early delivery), and chronic lung disease. No one knows how much multiple pregnancies affect neurological or behavioral development, even when none of the other problems occur.

Fetal death rates for single pregnancies are 4.3 per 1,000. For twins, that number is higher at 15.5 per 1,000; and for triplets, the fetal death rate is 21 per 1,000. The death of one or more fetuses in a multiple pregnancy ("vanishing twin") is more common in the first trimester and may be happen in up to 25% of IVF pregnancies. Loss of a fetus in the first trimester does not usually affect the surviving fetus.

The Option of Multifetal Pregnancy Reduction (Selective Reduction): With more fetuses in the uterus, the chance of a problem rises exponentially. Patients with twins or more have 3 choices:

- Continue with the pregnancy (with all the risks that have already been stated)
- End the pregnancy
- Reduce the number of fetuses (terminate one or more of the fetuses) to lower the health risks to mother and child

Reducing the number of fetuses lowers the risk of early delivery. This can be a difficult decision to make. The main danger is losing the entire pregnancy. The odds of losing the entire pregnancy are about 1 in 100 (1%).

The odds of losing the entire pregnancy are greater if there are more than 3 fetuses present before the procedure is done.

Ethical and Religious Considerations in Infertility Treatment

Infertility treatment can raise ethical or religious concerns for some patients. IVF involves the creation of embryos outside the human body. It can also involve the production of extra embryos and can lead to a high number of fetuses (triplets or more). Patients who have concerns should speak with their counselor or religious leader, or with someone else they trust. This can be a helpful step in infertility treatment.

Psychosocial Effects of Infertility Treatment

Finding out that you or your partner is infertile or has a lower fertility can be very painful. Infertility and its treatment can affect your emotions, your health, your finances, and your social life. During treatment, you may feel anxious, helpless, depressed, or alone. You may go through highs and lows. Be sure to notice if these feelings get severe. In some cases, you may want to seek the help of a mental health expert.

If you experience any of the following symptoms, we encourage you to seek treatment:

- Losing interest in the things you usually like to do.
- Feeling depressed most of the time.
- Strained feelings with your partner, family, friends, or those with whom you work.
- Thinking about infertility all the time.
- Feeling extremely anxious or nervous.
- Having trouble finishing tasks.
- Finding it hard to focus or concentrate.
- Having changes in your sleep patterns, such as having a hard time falling asleep or staying asleep, waking up early every morning, or sleeping more than normal.
- Having a change in your appetite or weight (increase or decrease).
- Using drugs or alcohol more than before.
- Thinking about death or suicide.
- Staying away from other people.
- Feeling negative, guilty, or worthless much of the time.
- Feeling bitter or angry much of the time.

Raising twins or higher multiples may cause physical, emotional, and financial stresses. The chance of having depression and anxiety is higher in women raising multiples.

Patients may consider working with mental health professionals who are specially trained in infertility care, as well as with their health care team, to minimize the emotional impact of infertility treatments. National support groups are also available, such as RESOLVE or Path2Parenthood, (www.resolve.org or www.path2parenthood.org).

Reporting Outcomes

In 1992, the Fertility Clinic Success Rate and Certification Act was passed. This law requires the Centers for Disease Control and Prevention (CDC) to gather information about IVF cycles and pregnancy outcomes in the U.S. each year. This information is used to calculate success rates which are reported each year.

Dallas IVF will report the required information from your IVF procedure to the CDC. Since Dallas IVF is a member of the Society of Assisted Reproductive Technologies (SART) of the American Society for Reproductive Medicine (ASRM), it will also be reported to SART. Information reported to SART about your cycle may be used for research or quality assessment according to HIPAA guidelines; your name will never be connected to your cycle information in any research that is published by ASRM or SART.

Research Conducted by SART

Since 2006, the Society for Assisted Reproductive Technology has participated in a series of studies looking at the health of women and children after IVF. Many of these studies are still being conducted. The studies compare women who have not had trouble conceiving and their children with women who used IVF and their children. The studies also compare women who had trouble conceiving but did not do IVF, and their children, to women and their IVF children. IVF children who have siblings form another study group. They are compared with their siblings who were conceived with IVF, conceived with non-IVF fertility treatment, or conceived spontaneously. The items studied are problems related to pregnancy or birth, and the risk of birth defects. Children are also followed to find out if they have developmental delays, problems in school, or increased risk of childhood or adult cancer. You can see the results of many of these studies in the information given below. Results can also be found on the SART website (www.sart.org) under "Research".

Additional Information

General IVF overviews available on the internet

www.reproductivefacts.org
www.sart.org/
www.cdc.gov/art/
www.resolve.org/site/PageServer

Effect of Woman's Age

Female age-related fertility decline. Committee Opinion No. 589. Fertility and Sterility 2014; 101:633-4.

Effect of Number of Oocytes Retrieved

Baker VL, Brown MB, Luke B, Conrad KP. Association of number of retrieved oocytes with live birth rate and birth weight: An analysis of 231,815 cycles of in vitro fertilization. Fertility and Sterility 2015; 103:931-8.

Effect of Infertility Diagnoses

Stern JE, Luke B, Tobias M, Gopal D, Hornstein MD, Diop H. Adverse pregnancy and birth outcomes by infertility diagnoses with and without ART treatment. Fertility and Sterility 2015; 103:1438-45.

Luke B, Stern JE, Kotelchuck M, Declercq E, Cohen B, Diop H. Birth outcomes by infertility diagnosis: Analyses of the Massachusetts Outcomes Study of Assisted Reproductive Technologies (MOSART). Journal of Reproductive Medicine 2015; 60:480-490.

Effect of Maternal Obesity

Luke B, Brown MB, Stern JE, Missmer SA, Fujimoto VY, Leach R. Female obesity adversely affects assisted reproductive technology (ART) pregnancy and live birth rates. Human Reproduction 2011; 26:245-252

Obesity and reproduction: A committee opinion. Practice Committee of the American Society for Reproductive Medicine. Fertility and Sterility 2015; 104:1116-26.

Number of Embryos to Transfer

Elective single-embryo transfer. Practice Committee of the American Society for Reproductive Medicine and the Practice Committee of the Society for Assisted Reproductive Technology. Fertility and Sterility 2012; 97:835-42.

Criteria for number of embryos to transfer: a committee opinion. The Practice Committee of the American Society for Reproductive Medicine and the Practice Committee of the Society for Assisted Reproductive Technology. Fertil Steril 2013; 99(1):44-6.

Practice Committee of the American Society for Reproductive Medicine, and the Practice Committee of the Society for Assisted Reproductive Technology. Guidance on the limits to the number of embryos to transfer: A committee opinion. Fertility and Sterility 2017; 107:901-3.

Culturing Embryos to the Blastocyst Stage

Blastocyst culture and transfer in clinical-assisted reproduction: A committee opinion. The Practice Committee of the American Society for Reproductive Medicine and the Practice Committee of the Society for Assisted Reproductive Technology. Fertil Steril 2013; 99:667-72.

Intracytoplasmic sperm injection

Genetic considerations related to intracytoplasmic sperm injection (ICSI). The Practice Committee of the American Society for Reproductive Medicine and the Practice Committee of the Society for Assisted Reproductive Technology. Fertil Steril 2006; 86 (suppl 4): S103-S105.

Intracytoplasmic sperm injection (ICSI) for non-male factor infertility: a committee opinion. Practice Committees of the American Society for Reproductive Medicine and Society for Assisted Reproductive Technology. Fertility and Sterility 2012; 98:1395-9.

Wen J, Jiang J, Ding C, Dai J, Liu Y, Xia Y, Liu J, Hu Z. Birth defects in children conceived by in vitro fertilization and intracytoplasmic sperm injection: a meta-analysis. Fertility and Sterility 2012; 97(6): 1331-1337 e4.

Embryo hatching

The role of assisted hatching in in vitro fertilization: a guideline. A Committee opinion. The Practice Committee of the American Society for Reproductive Medicine and the Practice Committee of the Society for Assisted Reproductive Technology. Fertil Steril 2014; 102:348-51.

Luke B, Brown MB, Wantman E, Stern JE. Factors associated with monozygosity in assisted reproductive technology (ART) pregnancies and the risk of recurrence using linked cycles Fertility and Sterility, 2014; 101:683-9.

Ovarian Hyperstimulation

Prevention and treatment of moderate and severe ovarian hyperstimulation syndrome: a guideline. The Practice Committees of the American Society for Reproductive Medicine. Fertil Steril 2016;106;1634-47.

Luke B, Brown MB, Morbeck DE, Hudson SB, Coddington CC, Stern JE. Factors associated with ovarian hyperstimulation syndrome (OHSS) and its effect on Assisted Reproductive Technology (ART) treatment and outcome. Fertility and Sterility 2010; 94:1399-404.

Cancer

Fertility drugs and cancer: a guideline. The Practice Committees of the American Society for Reproductive Medicine. Fertil Steril 2016; 106:1617-26.

Risks of pregnancy

Declercq E, Luke B, Belanoff C, Cabral H, Diop H, Gopal D, Hoang L, Kotelchuck M, Stern JE, Hornstein MD. Perinatal Outcomes Associated with Assisted Reproductive Technology: the Massachusetts Outcomes Study of Assisted Reproductive Technologies (MOSART). Fertility and Sterility 2015; 103:888-895.

Risk of borderline and invasive tumours after ovarian stimulation for *in vitro fertilization* in a large Dutch cohort. FE van Leeuwen, H Klip, et al. Human Reproduction, 2011;26(12):3456-65.

Luke B, Brown MB, Spector LG, Missmer SA, Leach RE, Williams M, Koch L, Smith Y, Stern JE, Ball GD, Schymura MJ. Cancer in women after assisted reproductive technology. Fertility and Sterility 2015; 104:1218-26.

Risks to offspring

Fauser BCJM, Devroey P, Diedrich K, Balaban B, Bonduelle M, Delemarre-van de Waal HA, Estella C, Ezcurra D, Geraedts JPM, Howles CM, Lerner-Geva L, Serna J, Wells D, Evian Annual Reproduction Workshop Group 2011. Health outcomes of children born after IVF/ICSI: A review of current expert opinion and literature. Reproductive BioMedicine Online 2014; 28:162-182.

Multiple pregnancy associated with infertility therapy: an American Society for Reproductive Medicine Practice Committee opinion. Practice Committees of the American Society for Reproductive Medicine Fertil Steril 2012; 97:825-34.

Imprinting diseases and IVF: A Danish National IVF cohort study. Lidegaard O, Pinborg A and Anderson AN. Human Reproduction 2005; 20(4):950-954.

Amor DJ and Halliday J. A review of known imprinting syndromes and their association with assisted reproduction technologies. Human Reproduction 2008; 23:2826-34.

Bergh C, Wennerholm U-B. Obstetric outcome and long-term follow up of children conceived through assisted reproduction. Best Practice & Research Clinical Obstetrics and Gynaecology (2012), doi:10.1016/j.bpobgyn.2012.05.001.
Wennerholm U-B, Söderstöm-Anttila V, Bergh C, Aittomäki K, Hazekamp J, Nygren K-G, Selbing A, Loft A. Children born after cryopreservation of embryos or oocytes: A systematic review of outcome data. Human Reproduction 2009; 24:2158-72.

Kopeika J, Thornhill A, Khalaf Y. The effect of cryopreservation on the genome of gametes and embryos: principles of cryobiology and critical appraisal of the evidence. Human Reproduction Update 2015; 21:209-227.

Birth Defects

Källén B, Finnström O, Lindam A, Nilsson E, Nygren K-G, Otterblad PO. Congenital malformations in infants born after in vitro fertilization in Sweden. Birth Defects Research (Part A) 2010; 88:137-43.

Davies MJ, Moore VM, Willson KJ, Van Essen P, Priest K, Scott H, Haan EA, Chan A. Reproductive Technologies and the risk of birth defects. N Engl J Med 2012; 366:1803-13.

Boulet SL, Kirby RS, Reefhuis J, Zhang Y, Sunderam S, Cohen B, Bernson D, Copeland G, Bailey MA, Jamieson DJ, Kissin DM. Assisted reproductive technology and birth defects among liveborn infants in Florida, Massachusetts, and Michigan, 2000-2010. JAMA Pediatrics 2016; Published online April 04, 2016. doi:10.1001/jamapediatrics.2015.4934

Informed Consent For the use of Donor Sperm

Patient Name: _____ Partner Name: _____
Patient ID#: _____ Partner ID#: _____

1. I/We, hereby request and authorize the physicians of Dallas IVF to perform In Vitro Fertilization (IVF) with anonymous donor sperm for the purpose of achieving a pregnancy. The sperm used for this procedure will be obtained from an anonymous donor, and not from the patient's partner.
2. I/We agree that the nature and purpose of this procedure and its possible complications have been explained to me/us adequately, I/we have had an opportunity to ask questions, and my/our questions have been answered to my/our satisfaction. I/We acknowledge that no guarantee or assurance has been made to me/us regarding the results of the use of the donor sperm.
3. I/We each desire the patient to utilize the sperm of an anonymous donor in IVF cycle(s) for the purpose of conceiving a child. I/We each agree that any child(ren) resulting from this procedure will be treated in all respects as my/our natural child.
4. I/We understand and acknowledge there is a possibility of spontaneous abortion and ectopic pregnancy with the advanced reproductive technologies and artificial insemination of all types.
5. I/We understand and acknowledge that no one from fertility has guaranteed that a child will result from any of these procedures.
6. I/We hereby acknowledge the fact that within the normal human population, a certain percentage of children are born with physical or mental defects. Despite screening of donors for genetic disorders by the sperm bank I chose, there is no reason to assume that the incidence of birth defects in children conceived by the use of donor sperm will be any different from that found in the general population. In other words, even with adequate screening, there still exists a risk that a child might be born with birth defects.
7. I/We acknowledge that although donors are screened for sexually-transmitted disease, there is no way to completely protect the recipient and even adequate screening will not totally eliminate the risk of getting a sexually-transmitted disease. I/we accept the risk of the occurrence of birth defects or of acquiring a sexually-transmitted disease.
8. I/We understand and acknowledge that if pregnancy results from the use of donor, there is a possibility of complications from childbirth or delivery, as well as the possibility of other adverse consequences.
9. I/We accept the risk of the occurrence of such complications or other adverse consequences.
10. I/We freely and knowingly agree to the terms of this consent and agree to be bound by them.

Initials of Both Partners_____ / _____

Informed Consent For the use of Donor Sperm (Cont'd)

Please make the appropriate selection below *(check only one box)*:

☐ **This portion of the consent is not applicable to us. We will NOT use donor sperm and plan to use partner's sperm.**

--or--

☐ **We wish to proceed with use of donor sperm using the recommended method of insemination.**

My/Our signature(s) below indicates that I/we have read and understood the above information. I/We have had an opportunity to ask questions and any questions have been answered to my/our satisfaction. I/We understand that I/we can withdraw from the program at any time without it affecting my/our future therapy or clinical care, and that there will be no penalty for such withdrawal.

NOTE: Each signature must be witnessed separately.

_____
Patient Name (please print)

_____ _____
Patient Signature Date

_____
Witness Name - Team Member (please print)

_____ _____
Witness Signature - Team Member Date

_____
Partner Name (please print)

_____ _____
Partner Signature Date

_____
Witness Name - Team Member (please print)

_____ _____
Witness Signature - Team Member Date

ADVANCE DIRECTIVE DISCLOSURE

All patients have the right to participate in their own health care decisions and to make advance directives or to execute powers of attorney that authorize others to make decisions on their behalf based on the patient's expressed wishes when the patient is unable to make decisions or unable to communicate decisions. This surgery center respects and upholds those rights; however, unlike in an acute care hospital setting, the surgery center does not routinely perform "high risk" procedures. Most procedures performed in this facility are considered to be of minimal risk. Of course, no surgery is without risk. You will discuss the specifics of your procedure with your physician who can answer your questions as to its risks, your expected recovery, and care after surgery. **Therefore, it is our policy, regardless of the contents of any advance directive or instructions from a Health Care Power of Attorney in Fact, that if an adverse event occurs during your treatment, we will initiate resuscitative measures or other stabilizing measures and transfer you to an acute care hospital for further evaluation.** At the acute care hospital, further treatment or withdrawal of treatment or measures already began will be ordered in accordance with your wishes, advance directive, or Health Care Power of Attorney. Your agreement with this policy by signature below does not revoke or invalidate any current Health Care Directive or Health Care Power of Attorney.

If you do not agree with this policy, we are pleased to assist you to reschedule the procedure.

Please check the appropriate answer to this question:
Have you executed an advance health care directive, living will, or Power of Attorney that authorizes someone to make health care decisions for you?

- ☐ Yes, I have an advance directive, living will, or Health Care Power of Attorney.
  If you check yes, please provide us a copy of that document so that it may be made part of your medical record.
- ☐ No, I do not have an advance directive, living will, or Health Care Power of Attorney.
- ☐ I would like to have information on advance directives.

By signing this document, I acknowledge that I have read and understand its contents and agree to the policy as described. If I have indicated I would like additional information, I acknowledge receipt of that information.

Patient Signature: _____ Date: _____

Print Name: _____

If consent to the procedure is provided by anyone other than the patient, this form must be signed below by the person providing the consent or authorization.

I acknowledge that I have read and understand its contents and agree to the policy as described.

Signature: _____ Date: _____

Print Name: _____

Relationship to Patient:

- ☐ Court Appointed Guardian
- ☐ Health Care Surrogate
- ☐ Attorney in Fact
- ☐ Other: _____

HIPAA Omnibus Notice of Privacy Practices

Effective Date*: *September 23, 2013

THIS NOTICE DESCRIBES HOW MEDICAL INFORMATION ABOUT YOU MAY BE USED AND DISCLOSED AND HOW YOU CAN GET ACCESS TO THIS INFORMATION. PLEASE REVIEW IT CAREFULLY.

If you have any questions about this notice, please contact our **Privacy Officer**

This Notice of Privacy Practices describes how we and our Business Associates may use and disclose your protected health information (PHI) to carry out treatment, payment or healthcare operations (TPO) and for other purposes that are permitted or required by law. It also describes your rights to access and control your PHI. PHI is information about you, including demographic information, that may identify you and that relates to your past, present and future physical condition and related health care services. We are required by law to maintain the privacy of, and provide individuals with, this notice of our legal duties and privacy practices with respect to PHI. We are also required to abide by the terms of the notice currently in effect.

USES AND DISCLOSURES OF PROTECTED HEALTH INFORMATION (PHI):

Your PHI may be used and disclosed by your physician, our office staff and others outside of our office that are involved in your care and treatment for the purpose of providing health care services to you, to pay your health care bills, to support the operation of the physician's practice, and any other use required by law.

For Treatment. We may use and disclose PHI for your treatment and to provide you with treatment-related health care services. For example, we may disclose Health Information to doctors, nurses, technicians, or other personnel, including people outside our office, who are involved in your medical care and need the information to provide you with medical care.

For Payment. We may use and disclose PHI so that we or others may bill and receive payment from you, an insurance company or a third party for the treatment and services you received. For example, we may give your health plan information about you so that they will pay for your treatment.

For Health Care Operations. We may use or disclose, as needed, your PHI in order to support the business activities of your physician's practice. These activities include, but are not limited to, quality assessment, employee review, and conducting or arranging of other business activities. For example, we will use a sign-in sheet at check-in where you will be asked to sign your name. We will also call you by name in the waiting room when your physician is ready to see you.

We may use or disclose your PHI in the following situations without your authorization. These situations include: as required by law, public health issues as required by law, communicable diseases, health oversight, abuse or neglect, food and drug administration requirements, legal proceedings, law enforcement, coroners, funeral directors, organ donation, research, criminal activity, military activity and national security, workers' compensation, inmates, and other required uses and disclosures. Under the law, we must make disclosures to you upon your request. Under the law, we must also disclose your PHI information when required by the Secretary of the Department of Health and Human Services to investigate or determine our compliance with the requirements under Section 164.500.

USES AND DISCLOSURES THAT REQUIRE YOUR AUTHORIZATION:

Other Permitted and Required Uses and Disclosures will be made **only with your consent, authorization** or opportunity to object unless required by law. Without your authorization, we are expressly prohibited to use or disclose your PHI for marketing purposes. We may not sell your PHI without your authorization. We may not use or disclose most psychotherapy notes contained in your PHI. We will not use or disclose any of your PHI that contains genetic information that will be used for underwriting purposes.

You may revoke the authorization at any time, in writing, except to the extent that your physician or the physician's practice has taken an action in reliance on the use or disclosure indicated in the authorization.

The following are statements of your rights with respect to your PHI:

You have the right to inspect or copy your PHI (fees may apply) – Pursuant to your written request, you have the right to inspect or copy your PHI whether in paper or electronic format. Under federal law, however, you may not inspect or copy the following records: Psychotherapy notes, information compiled in reasonable anticipation of, or used in, a civil, criminal, or administrative action or proceeding, PHI restricted by law, information that is related to medical research in which you have agreed to participate, information whose disclosure may result in harm or injury to you or to another person, or information that was obtained under a promise of confidentiality.

You have the right to request a restriction of your PHI – This means you may ask us not to use or disclose any part of your PHI for the purposes of treatment, payment or healthcare operations. You may also request that any part of your PHI not be disclosed to family members or friends who may be involved in your care or for notification purposes as described in this Notice of Privacy Practices. Your request must state the specific restriction requested and to whom you want the restriction to apply. Your physician is not required to agree to your requested restriction except if you request that the physician not disclose PHI to your health plan with respect to healthcare for which you have paid in full out of pocket.

You have the right to request to receive confidential communications – You have the right to request confidential communications from us by alternative means or at an alternative location.

You have the right to request an amendment of your PHI – If we deny your request for amendment, you have the right to file a statement of disagreement with us and we may prepare a rebuttal to your statement and will provide you with a copy of any such rebuttal.

You have the right to receive an accounting of certain disclosures – You have the right to receive an accounting of disclosures, paper or electronic, except for disclosures: pursuant to an authorization, for purposes of treatment, payment, healthcare operations, required by law, that occurred prior to April 14, 2003, or six year prior to the date of the request.

You have the right to receive notice of a breach – We will notify you if your unsecured PHI has been breached.

You have the right to obtain a paper copy of this notice from us even if you have agreed to receive the notice electronically. We will reserve the right to change the terms of this notice and we will notify you of such changes on the following appointment. We will also make available copies of our new notice if you wish to obtain one.

Patient Rights

- To be treated with respect, dignity, and consideration, free from discrimination due to race, age, color, religion, national origin, gender, disability, sexual orientation, or marital status

- Consistent, quality care by qualified and trained professionals in clean, safe settings

- Be provided with appropriate privacy

- Have your records treated confidentially and, except when authorized by law, be given the opportunity to approve or refuse their release

- To be informed of risk, benefits and alternatives to medications and/or therapy

- To participate in the development and implementation of your plan of care and actively participate in decisions regarding your medical care and given the necessary information to given informed consent prior to the start of any procedure/surgery or treatment. To the extent permitted by law, this includes the right to request and/or refuse treatment

- To expect reasonable continuity of care

- To formulate advance directives regarding your healthcare, and have the ASC staff and practitioners who provide care in the ASC to comply with these directives (to the extent provided by state laws and regulations)

- To change your provider if other qualified providers are available

- To an Interpreter whenever reasonably possible

- To make a complaint or grievance. You will not be penalized in any way.

Please direct any complaints to:
Allison Arrington, RN
Director of Nursing
214-297-0022
allison@dallasivf.com

If this venue does not provide you with an acceptable resolution
the Department of State Health Services is the responsible agency for
ambulatory surgical center complaint investigations.
Any complaints may be submitted to:
Department of State Health Services,
Health Facility Compliance Division
1100 West 49th Street
Austin, Texas 78756
1-888-973-0022

Patient Responsibilities

- To provide complete and accurate information to the best of your ability about your health, any medications, including over-the-counter products and dietary supplements, and any allergies or sensitivities

- To follow the treatment plan prescribed by your provider

- Provide a responsible adult to transport you home from the facility and remain with you for 24 hours following procedures, if required by your provider

- To inform your provider about any living will, medical power of attorney, or other directive that could affect your care

- To accept any personal financial responsibility for any charges not covered by your insurance

- To be respectful of all the health care providers and staff, as well as other patients

Information regarding our billing policies is available upon request.
Complaints about this surgery center may be directed either by phone or in writing to the
Texas Department of State Health Services
Facility Licensing Group
1100 West 49th Street
Austin, TX 78756
1-888-973-0022
A complainant may provide his/her name, address, and phone number to the department. Anonymous complaints may be registered. All complaints are confidential.

Complaints may also be directed to the Office of the Medicare Beneficiary Ombudsman
www.medicare.gov/Ombudsman/resources.asp

COMPLAINTS

You may file a complaint to us or to the Secretary of Health and Human Services if you believe your privacy rights have been violated by us. You may file a complaint with us by notifying our **Privacy Officer** of your complaint. Any complaint you file will be used strictly to improve our operating procedures, and in doing so, you will not be retaliated against for filing a complaint.

I have reviewed the above **Notice of Privacy Practice**, which explains how my medical information will be used and disclosed. By signing below, I acknowledge that I have read and understand the above and understand my rights to privacy of Protected Health Information.

_____ _____
Printed Patient's Name Date

_____
Patient's Signature

Acknowledgement of Policies

Initials:

_____ **Consent to Treatment:** I request admission to Dallas IVF Surgery Center and authorize the facility, staff and physicians to provide care. I request and consent to medical care and diagnostic procedures that my referring and/or attending physician(s) or his/her designees, determine are necessary. I certify that I am the patient or the legal guardian of the patient and consent to treatment necessary for the care of the patient on this form.

_____ **After Hours, Weekend, and Holiday Coverage:** Dr. Brian D. Barnett, Dr. Lowell T. Ku, Dr. Dara L. Havemann, and Dr. Sara J. Mucowski share after hour coverage as well as office coverage for weekends and holidays. It is necessary for medical care to release or disclose certain medical information to these physicians.

_____ **Notice of Out of Network:** Insurance claims that are filed on behalf of Dallas IVF Surgery Center and/or Dallas IVF Lab will be processed as out of network claims in accordance to my out of network benefits. I understand that any payment that is made towards my deductible and/or coinsurance will be applied towards my out of network deductible and/or my out of network coinsurance.

_____ **Payment Policy:** I understand that I am responsible for payment of professional services at the time they are rendered. I understand that I am responsible for any amount not covered by my insurance including, without, limitation, my deductible, co-payment, co-insurance, or other amounts unpaid by my insurance, if benefits are assigned. **Dallas IVF Surgery Center** files claims for any insurance plans which we participate with. We accept payments made with cash, check, Visa ®, Mastercard ®, Discover ®, or American Express ®. If you plan to pay by check and it is dishonored, a processing fee of $35.00 will be assessed.

_____ **Assignment of Benefits:** I request that payment of medical benefits be made to **Dallas IVF Surgery Center** and understand that this is automatic in case of hospitalization. This assignment of benefits will remain in effect until revoked by me in writing.

_____ **Authorization for Release of Medical Information:** I hereby authorize **Dallas IVF Surgery Center** to release any medical or incidental information that may be necessary for medical care or to process medical claims for which payment is assigned to **Dallas IVF Surgery Center**

_____ **Acknowledgement of HIPAA Notice of Privacy Practice**, A description of how your medical information will be used and disclosed is summarized on the HIPAA Notice of Privacy Practice. A complete copy is included in your admissions packet and posted in the Facility. By signing below, you acknowledge that you have received a copy of the HIPAA Notice of Privacy Practice.

_____ **I GIVE PERMISSION** for my protected health information to be disclosed for purposes of communicating results, findings and care decisions to my family members and others. ☐ Yes ☐ No
☐ **Limited disclosure to persons listed below:**
Name:
_____
Name:
_____

_____ I authorize representatives of **Dallas IVF Surgery Center** to leave messages for me regarding appointments, prescriptions, or any other information pertinent to my medical care, on any phone number that I have provided.

_____ **I understand that I may revoke consent for any or all of the above initialed items at any time in writing by sending a written, certified letter to Dallas IVF Surgery Center, 2840 Legacy Drive, Suite 110, Frisco, TX 75034 ATTENTION: Administrator/Medical Records. I certify that all information provided is correct.**

_____ _____
Patient/Responsible Party's Signature Date

Disposition of Embryos

Agreement and Declaration of Intent

This "Disposition of Embryos, Agreement and Declaration of Intent," is an agreement entered into between _____ ("Patient") and _____ ("Partner/Spouse"*) (collectively "I/we" or "you") and DALLAS IVF, to document decisions and agreements about what will be done with any cryopreserved (frozen) pre-implantation IVF embryos that remain after Patient and any Partner/Spouse's current treatment cycle.

The embryos covered by this document were the result of:

-- insemination of eggs performed on: ALL treatment dates with

-- resulting embryos frozen on: ALL Cryopreservation dates resulting from IVF treatment received.

Your currently available choices for disposition are listed below. Please understand that DALLAS IVF cannot guarantee what the available or acceptable choices for disposition will be at any future date as this field is rapidly evolving both legally and medically. You may also wish to consult with a lawyer, together or individually, for each of you to understand your legal rights and any law that may apply to this agreement or to your disposition choices. If any choice you select is not available for any reason, you are authorizing DALLAS IVF to thaw and discard any currently cryopreserved embryos under this agreement. The currently available disposition choices are:

1. Discarding the embryo(s)
2. Award the embryo(s) for approved research studies
3. Donating the embryos for clinical quality control and training
4. Donating the embryos to another individual or couple to achieve a pregnancy ("recipient(s)"). This choice may require infectious disease testing and screening in accordance with federal and/or state requirements.
5. Use by one of you following your divorce or separation or the death of one of you.

This agreement gives several options for embryo disposition in the future including, death of Patient or Patient's Spouse/Partner, separation or divorce of Patient and Spouse/Partner, successful pregnancy after IVF treatment, decision to stop IVF treatment, and failure to pay fees for frozen embryo storage.

I/We agree that unless we have provided DALLAS IVF with a more recent agreement regarding these embryos, that has been properly and jointly signed by each of us and properly notarized, DALLAS IVF is authorized to act on the choice(s) we select below.

Note:

- Selecting any choice that needs ongoing cryopreservation (freezing) for possible future use means that all cryopreservation, storage fees or related fees must be paid on time and in full or the choice will no longer be available.
- Disposing of embryos that were created using donated sperm or eggs may be subject to any written agreements that you entered into directly with a sperm, egg or embryo donor, or with a coordinating program, bank, or other entity. These direct agreements may impact and limit your available choices in this agreement, and your ability to direct how you may want to dispose of your embryos in the future. DALLAS IVF is not responsible if there are any limitations on your choices for disposing of embryos. For example, in the case of embryos created using donated sperm and/or eggs, you may not

be able to donate them to achieve a pregnancy or for research or, you may need to obtain new written consent from any sperm, egg or embryo donor.

- Embryo donation for research purposes may also be restricted by applicable state or federal laws that govern your jurisdiction (where you live) or govern where the embryos are located.
- Embryo donation to achieve a pregnancy is regulated by the FDA (U.S. Food and Drug Administration), as well as certain states' laws, as donated tissue, and may require certain screening and testing of the persons providing the sperm and eggs before donation can occur.
- Subject to any agreement with any donor, coordinating program, bank or entity, you are free to jointly revise the choices you indicate here at any time by each of you completing and signing another agreement, having it notarized, and delivering it to DALLAS IVF.
- Your wills and any estate planning documents should also include your wishes on disposing of any embryos and be consistent with this agreement. If there are any inconsistencies, they may need to be resolved by a court of competent jurisdiction.
- If there is any future question about disposing of the embryos in the case of a divorce or dissolution of relationship, DALLAS IVF may require a valid, final, non-appealable court decree by a court of competent jurisdiction and/or settlement agreement (as determined in DALLAS IVF's sole discretion), which specifically tells DALLAS IVF how to make a final disposition of the embryos.

For EACH section below, you must:

1) check the appropriate box in each section to select your choice, and

2) each initial the bottom of each page.

Death of Patient or Partner

In the event Patient or partner dies before using all the embryos, I/we agree that the embryos should be disposed of as checked below (**check only one box**):

1. ❑ Give to Patient's surviving Spouse or Partnerwhich gives complete control over the embryos for any purpose, including implantation to achieve a pregnancy, donation to achieve pregnancy by someone else, donation for research or clinical training, or destruction and discard. This may mean continuing to keep the embryos in storage and will require paying all continuing storage fees and other payments due to DALLAS IVF for these cryopreservation services.

2. ❑ Donate to achieve a pregnancy, either to one or more recipients located and selected by DALLAS IVF or to a specific recipient(s) we identify here (**choose either option A or B**):

A. ❑ Donate through DALLAS IVF, who will try to locate and select an embryo bank or one or more recipient(s) to receive our embryos to attempt a pregnancy if this is practical (as determined by DALLAS IVF at its sole discretion), and, if it is not, to discard the embryos.

B. ❑ Donate to the specific couple or individual to achieve a pregnancy that we have named below (the "recipient(s)). This may mean keeping the embryos in storage and depends upon both 1) payment by us or the named recipient(s) of all storage fees and other payments due to DALLAS IVF for these cryopreservation services, and 2) DALLAS IVF's ability to carry out this choice. We also understand that any recipient may in the future make any disposition of any unused embryos that he, she or they wish.

Please donate to:
Name(s) _____
Address _____
_____
Telephone _____
Email _____

Because it is possible your named recipient(s) may be unable or unwilling to accept the embryos, or the Patient's estate representative (Executor) does not carry out this choice, **you must check one of the**

boxes below to indicate whether you **DO OR DO NOT** want DALLAS IVF to try to locate another recipient(s) for donation to attempt a pregnancy and parent any resulting child or if you want your embryos to be discarded.

If the named individual or couple is unable or unwilling to accept the embryos, I/we direct DALLAS IVF as checked below (**choose either option 1 or 2**):

1. ❑ Do not donate to another recipient(s), or entity, but discard our embryos.
2. ❑ Try to locate and donate to an embryo bank or one or more recipient(s) to attempt a pregnancy if practical (as determined by DALLAS IVF in its sole discretion), and if this is not possible, discard our embryos.

Special note for embryos created with donated gametes: If your embryos were created with gametes (eggs and/or sperm) from a third-party donor, your choice to donate these embryos to another couple or individual must be consistent with any and all applicable direct agreements made with, or written authorizations from, the gamete donor(s) and/or gamete bank. If donor gametes were used, the gamete donor must give or have given prior written authorization to the Patient, or to any gamete program or bank, agreeing to having these gametes used for any purpose besides trying to attempt a pregnancy by the original recipient(s). Without this prior written authorization, the embryos will be discarded.

3. ❑ Donate for research purposes, including but not limited to embryonic stem cell research, which may result in destroying the embryos, but will not result in the birth of a child.

4. ❑ Donate for clinical training, which may result in destroying the embryos, but will not result in the birth of a child.

5. ❑ Discard the embryos.

6. ❑ Other disposition (please specify); this option must also be initialed by an authorized representative of DALLAS IVF to be effective: _____

❑ Agreed upon and authorized by DALLAS IVF representative:

_____

Simultaneous Death of Patient and Spouse/Partner

If Patient and Patient's Spouse/Partner die at the same time (as defined by applicable state law) before using all the embryos, I/we agree that the embryos should be disposed of as checked below **(check one box only)**:

1. ❑ Donate to achieve a pregnancy, either to a specific recipient(s) we have named here or to one or more recipients located and selected by DALLAS IVF, as checked below (**choose either option A or B**):

A. ❑ Donate through DALLAS IVF, who will try to locate and select an embryo bank or one or more couples or individuals to donate our embryos to achieve a pregnancy if this is practical (as determined by DALLAS IVF at its sole discretion), and, if it is not, to discard the embryos.

B. ❑ Donate to the specific couple or individual named below to achieve a pregnancy named below. This may mean keeping the embryos in storage and depends upon both 1) payment by our estate or the named recipient(s) of all storage fees and other payments due to DALLAS IVF for these cryopreservation services, and 2) DALLAS IVF's ability to make this choice happen. In case the recipient is unable or unwilling to accept these embryos, or the estate representative(s) (Executor) does not carry out this choice, you must check here if you DO or DO NOT want DALLAS IVF to try to locate another recipient(s) for donation to achieve a pregnancy, or if you want your embryos to be discarded.

Please donate to: Name(s) _____
Address _____
_____
Telephone _____
Email _____

If the named individual or couple is unable or unwilling to accept the embryos, I/we direct DALLAS IVF as checked below (**choose either option 1 or 2**):

1. ❑ Do not donate to another recipient(s), or entity, but discard our embryos.

2. ❑ Try to locate and donate to an embryo bank or one or more couples or individuals to achieve a pregnancy, if practical (as determined by DALLAS IVF's sole discretion), and if this is not possible, discard our embryos.

Special note for embryos created with donated gametes: If your embryos were created with gametes (eggs and/or sperm) from a third-party donor, your choice to donate these embryos to another couple or individual must be consistent with the same as any and all applicable direct agreements made with the gamete donor(s). If gamete donors were used, the gamete donor must give prior written authorization to the Patient to use these gametes for any purpose besides trying to achieve a pregnancy by the original recipient(s). Without this prior written authorization, discarding the embryos will be required.

2. ❑ Donate for research purposes, including but not limited to embryonic stem cell research, which may result in destroying the embryos, but will not result in the birth of a child.

3. ❑ Donate for clinical training, which may result in destroying the embryos, but will not result in the birth of a child.

4. ❑ Discard the embryos.

5. ❑ Other disposition (please specify); this option must also be initialed by an authorized representative of DALLAS IVF to be effective: _____

❑ Agreed upon and authorized by DALLAS IVF representative:
_____

Divorce or Dissolution of Relationship

If the Patient and Spouse/Partner are divorced or dissolve their non-marital relationship, I/we agree that the embryos should be disposed of as checked below **(check one box only)**:

1. ❑ Give to _____ (Patient) alone, or with a new partner or spouse, knowing that the agreement does not discuss whether any legal parent-child relationship(s) will be created or not created.

2. ❑ Give to _____ (Spouse/Partner) alone, or with a new partner or spouse, knowing that this agreement does not discuss whether any legal parent-child relationship(s) will be created or not created.

3. ❑ Donate to achieve a pregnancy, either to a specific recipient(s) we have named below, or to one or more recipients located and selected by DALLAS IVF, as checked below (**choose either option A or B**):

A. ❑ Donate through DALLAS IVF, who will try to locate and select an embryo bank or one or more couples or individuals to donate our embryos to achieve a pregnancy if this is practical (as determined by DALLAS IVF's sole discretion), and, if it is not, to discard the embryos.

B. ❑ Donate to the specific couple or individual named below to achieve a pregnancy. This may mean keeping the embryos in storage and depends upon payment by us or the named recipient(s) of all storage fees and other payments due to DALLAS IVF for these cryopreservation services. In case the recipient(s) is unable or unwilling to accept these embryos, you must check here if you DO or DO NOT want DALLAS IVF to try to locate another recipient(s) for donation to achieve a pregnancy, or if you want the embryos to be discarded.

Please donate to: Name(s) _____
Address _____
_____
Telephone _____
Email _____

If the named individual or couple is unable or unwilling to accept the embryos, I/we direct DALLAS IVF as checked below (**choose either option 1 or 2**):

1. ❑ Do not donate to another recipient(s), or entity, but discard our embryos.

2. ❑ Try to locate and donate to one or more couples or individuals to achieve a pregnancy, if possible (as determined by DALLAS IVF in its sole discretion), and if not, to discard our embryos.

Special note for embryos created with donated gametes: If your embryos were created with gametes (eggs and/or sperm) from a third-party donor, your choice to donate these embryos to another couple or individual must be consistent with the same as any and all applicable direct agreements made with the gamete donor(s). If gamete donors were used, the gamete donor must give prior written authorization to the Patient to use these gametes for any purpose besides trying to achieve a pregnancy by the original recipient(s). Without this prior written authorization, discarding the embryos will be required.

4. ❑ Give for research purposes, including but not limited to embryonic stem cell research, which may result in destroying the embryos, but will not result in the birth of a child.

5. ❑ Give for clinical training, which may result in destroying the embryos, but will not result in the birth of a child.

6. ❑ Discard the embryos.

7. ❑ Other disposition (please specify); this option must also be initialed by an authorized representative of DALLAS IVF to be effective: _____

❑ Agreed upon and authorized by DALLAS IVF representative:
_____

NOTE: If there is any future question about disposing of the embryos in the case of a divorce or dissolution of relationship, DALLAS IVF may require a valid, final, non-appealable court decree by a court of competent jurisdiction and/or settlement agreement (as determined by DALLAS IVF's sole discretion), which specifically tells DALLAS IVF how to make a final disposition of the embryos.

Discontinuation of IVF Treatment

In the event Patient and her Spouse/Partner mutually agree to discontinue IVF treatment as a couple, I/we agree that any embryos should be disposed of in the following manner **(check one box only):**

1. ❑ Give to Patient alone or with a new partner or spouse, recognizing that any legal parent-child relationship(s) created or not created are beyond the scope of this agreement.

2. ❑ Give to Spouse/Partner alone or with a new partner or spouse, recognizing that any legal parent-child relationship(s) created or not created are beyond the scope of this agreement.

3. ❑ Donate to achieve a pregnancy, either to a specific couple or individual(s) we name below, or to one or more couples or individuals located and selected by DALLAS IVF, as specified below (**choose either option A or B**):

A. ❑ Donate through DALLAS IVF, who will try to locate and select or one or more couples or individual(s) to donate our embryos to achieve a pregnancy if possible (as determined by DALLAS IVF at its sole discretion), and, if it is not, to discard the embryos.

B. ❑ Donate to the specific couple or individual named below to achieve a pregnancy. This may mean keeping the embryos in storage and depends upon payment by us or the named recipient(s) of all storage fees and other payments due to DALLAS IVF for these cryopreservation services. In case the recipient(s) is unable or unwilling to accept these embryos, you must check here if you DO or DO NOT want DALLAS IVF to try to locate another recipient(s) for donation to achieve a pregnancy, or if you want the embryos to be discarded.

Please donate to:
Name(s) _____
Address _____
_____
Telephone _____
Email _____

If the named individual or couple is unable or unwilling to accept the embryos, I/we direct DALLAS IVF as checked below (**choose either option 1 or 2**):

1. ❑ Do not donate to another recipient(s), or entity, but discard our embryos.

2. ❑ Select and donate to one or more couples or individual(s) to achieve a pregnancy, if possible (as determined by DALLAS IVF in its sole discretion), and otherwise discard.

Special note for embryos created with donated gametes: If your embryos were created with gametes (eggs and/or sperm) from a third-party donor, your choice to donate these embryos to another couple or individual must be consistent with the same as any and all applicable direct agreements made with the gamete donor(s). If gamete donors were used, the gamete donor must give prior written authorization to the Patient to use these gametes for any purpose besides trying to achieve a pregnancy by the original recipient(s). Without this prior written authorization, discarding the embryos will be required.

4. ❑ Donate for research purposes, including but not limited to embryonic stem cell research, which may result in destroying the embryos, but will not result in the birth of a child.

5. ❑ Donate for clinical training, which may result in destroying the embryos, but will not result in the birth of a child.

6. ❑ Discard the embryos.

7. ❑ Other disposition (please specify); this option must also be initialed by an authorized representative of DALLAS IVF to be effective: _____

❑ Agreed upon and authorized by DALLAS IVF representative:
_____

NOTE: If there is any future question about disposing of the embryos in the case of a divorce or dissolution of relationship, DALLAS IVF may require a valid, final, non-appealable court decree by a court of competent jurisdiction and/or settlement agreement (as determined in DALLAS IVF's sole discretion), which specifically tells DALLAS IVF how to make a final disposition of the embryos.

Nonpayment of Cryopreservation Storage Fees

Maintaining embryo(s) in a frozen state is labor intensive and expensive. Patients/couples who have frozen embryo(s) must pay fees associated with the storage of their embryos in accordance with DALLAS IVF's storage and payment protocol as well as remain in contact with DALLAS IVF on at least an annual basis in order to inform DALLAS IVF of their wishes.

In situations where there is either:

1) No contact by Patient and/or Spouse/Partner with DALLAS IVF for a period of 3 years, or

2) A failure to pay fees for and associated with embryo storage for a period of 3 years and DALLAS IVF has made reasonable efforts to contact Patient and Spouse/Partner in accordance with its established protocols,

We expressly understand, agree, and authorize DALLAS IVF to discard our embryo(s) in accordance with its normal laboratory procedures and applicable law without further notice to, or consent required by, Patient or Spouse/Partner. In such circumstances, I/we also acknowledge that I/we have relinquished any and all claims to the embryos or to any additional notice from DALLAS IVF as to its ultimate disposition of the embryos

Time-Limited Storage of Embryos

DALLAS IVF will only maintain cryopreserved embryos for a period of 5 years, or until the younger of us reaches the age of 50, whichever comes first. After that time, I/we elect **(check one box only)**:

❑ Award for research, including but not limited to embryonic stem cell research, which may result in the destruction of the frozen embryos, but will not result in the birth of a child.

❑ Award for clinical training purposes which may result in the destruction of the frozen embryos but will not result in the birth of a child.

❑ Discard the frozen embryos.

❑ Transfer to a storage facility at our expense and risk. We understand we will be required to execute documents as provided by or approved by DALLAS IVF and any storage facility.

- Should we wish to make any other dispositional choice, we will be required to jointly execute a new dispositional agreement and be current in all storage and related fees.

Age-Limited Storage of Embryos

I/We understand that DALLAS IVF will not transfer embryos into any woman to produce a pregnancy after age 50 years. After this age, I/we elect **(check one box only):**

❑ Transfer embryos into one of us that has not reached that age, or into a gestational carrier.

❑ Award for research, including but not limited to embryonic stem cell research, which may result in the destruction of the frozen embryos, but will not result in the birth of a child.

❑ Award for clinical training purposes which may result in the destruction of the frozen embryos but will not result in the birth of a child.

❑ Discard the embryos.

❑ Transfer to a storage facility at my/our expense and risks. I/we understand I/we will be required to execute documents as provided by, or approved by, DALLAS IVF and any storage facility.

- Should we wish to make any other dispositional choice, we will be required to jointly execute a new dispositional agreement and be current in all storage and related fees.

Donation of Frozen Embryos for Research Purposes

If you selected the option "award for research purposes" under any of the preceding circumstances, as a donor of human embryos to research, including but not limited to stem cell research, you should be aware of the following:

- Donating embryo(s) for research may not be possible or may be restricted by law. While efforts will be made to abide by your wishes, no guarantees can be given that embryo(s) will be used for research or donated to another couple. In these instances, if after 1 year(s) no recipient or research project can be found, or your embryos are not eligible, your embryo(s) will be destroyed and discarded by the lab in accordance with laboratory procedures and applicable laws.
- The embryos may be used to derive human pluripotent stem cells for research and the cells may be used, at some future time, for human transplantation research.
- All identifiers associated with the embryos will be removed prior to the derivation of human pluripotent stem cells.
- Donors to research will not receive any information about subsequent testing on the embryo or the derived human pluripotent cells.
- Derived cells or cell lines, with all identifiers removed, may be kept for many years.
- It is possible the donated material may have commercial potential, but the donor will receive no financial or other benefit from any future commercial development.
- Human pluripotent stem cell research is not intended to provide direct medical benefit to the embryo donor.
- Donated embryos will not be transferred to a woman's uterus, nor will the embryos survive the human pluripotent stem cell derivation process. Embryos will be handled respectfully, as is appropriate for all human tissue used in research.
- If the donated embryos were formed with gametes (eggs or sperm) from someone other than the patient and her spouse or partner (those who sign this document), the gamete donor(s) may be required to provide a signed, written consent for use of the resulting embryos for research purposes.

Legal Considerations and Legal Counsel

The law regarding embryo cryopreservation, subsequent thaw and use, and the parent-child status of any resulting child(ren), including but not limited to children born following the death, divorce, or separation of any patient and spouse/partner is, or may be, unsettled in the state in which either the Patient, Spouse, Partner, or any donor or ultimate recipient(s) currently or in the future lives, or the state in which DALLAS IVF is located. We acknowledge that DALLAS IVF has not given us legal advice, that we are not relying on DALLAS IVF to give us any legal advice, and that we have been informed that we may wish to individually and/or jointly consult a lawyer(s) experienced in the areas of family and reproductive law and embryo cryopreservation and disposition if we have any questions or concerns about the present or future status of our embryos, our individual or joint access to them, our individual or joint parental status as to any resulting child, or about any other aspect of this agreement.

I/We also agree that if our selected disposition choice is not available or, in DALLAS IVF's sole discretion, is not practical to implement, or if I/we do not uphold our obligation to pay all storage and storage related fees as and when due, or in any other way fail to preserve any choice we have made here as required by this agreement or DALLAS IVF, I/we authorize DALLAS IVF to discard our embryos. Initials: _____/_____

We (I) acknowledge that we have read and understood the information provided above regarding IVF and all procedures involved and their risks and agree to go forward with this treatment as our signatures below testify. The signatures below certify the disposition choices we have made above. We understand that we can change our choices in the future, but must do so by mutual and written agreement, properly signed, notarized, and delivered as outlined above. We also understand, acknowledge and agree that in the event none of our elected choices is available, DALLAS IVF is authorized by us, without further notice from or consent by us, to destroy and discard our frozen embryos.

If signed outside of Dallas IVF, this document requires a Notary.
If signed at Dallas IVF, both parties must be present, and this document must be signed in the presence of a DALLAS IVF employee and witnessed below.

X_____ _____
Patient Signature Date

_____ _____
Patient Name Date of Birth

Notary Public
Sworn and subscribed before me on this _____ day of _____, _____.

_____ _____
Notary Signature Date

X_____ _____
Spouse / Partner Signature Date

_____ _____
Spouse / Partner Name Date of Birth

Notary Public
Sworn and subscribed before me on this _____ day of _____, _____.

_____ _____
Notary Signature Date

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Statement by Witness
I declare that the person who signed this document is personally known to me and appears to be of sound mind and acting of his or her own free will. He or she signed (or asked another to sign for him or her) this document in my presence.

Witness Name: _____

Witness Signature: _____ Date: _____

Dallas IVF

embryo OPTIONS

Dallas IVF
Reproductive Endocrinology & Infertility

cryopreservation

Often times patients who seek fertility treatment desire to cryopreserve excess embryos, eggs or sperm.

When you choose to cryopreserve embryos, eggs or sperm you will be responsible for paying an annual storage fee, signing cryopreservation consents, and informing the center as to how you would like to dispose of your embryos, eggs, or sperm when continued storage is no longer desired.

PEACE OF MIND

To make all of these responsibilities easier for you, **Dallas IVF has partnered with Embryo Options.** Embryo Options allows patients to pay cryo-storage fees online, as well as gain access to a secure educational portal that provides information about disposition options for your embryos, eggs, or sperm.

PRE-ENROLLMENT & STORAGE AGREEMENT

Pre-enrolling into Embryo Options will prepare you to pay cryo-storage fees online, and trigger the delivery of a storage agreement sent to you via Docusign. Please see pre-enrollment instructions below:

STORAGE

Dallas IVF will continue to store all embryos, eggs, or sperm for enrollees in the Embryo Options program. When you no longer wish to store your embryos, eggs, or sperm, you will find education about the following disposition options in your secure Embryo Options portal:

- **Dispose according to Dallas IVF's policies**
- **Donate to research**
- **Donate to another couple**
- **Use own embryos, eggs, or sperm**

TERMS AND PRIVACY

Dallas IVF will only use the form of payment you provide Embryo Options to satisfy fees owed for cryopreservation and storage services. All personal information you provide Embryo Options is kept strictly confidential and will not be sold for marketing purposes.

Pre-enroll on Your Mobile Device

For Apple, place camera over QR code and click on the notification that appears.

For Android, place camera over QR code and hold down your device's home button.

You can also pre-enroll at https://eocryo.com/divf-u5j

To learn more about Embryo Options, please ask a Dallas IVF representative.

www.embryooptions.com

Embryo Options®
Phone 844.234.6241 | Email customerservice@embryooptions.com

02.2020