



In Vitro Fertilization

What to expect

This handout describes how to prepare for and what to expect when you have *in vitro* fertilization.

It provides written information about this process, including risks, benefits, and other options. This material is in addition to the talks you have with your doctors.

It is important that you fully understand this information, so please read this information packet thoroughly and ask questions before signing the consent form.

There are several steps involved in the *in vitro* fertilization (IVF) and embryo transfer process:

- **Ovulation Induction:** First, you will receive medicines to cause many eggs to grow and mature in your ovaries.
- **Monitoring:** You will have blood and *ultrasound* tests to monitor how you are responding to the medicines by measuring the growth of *follicles* (egg sacs) and rise in hormones.
- **Triggering:** After ovulation induction, another medicine is injected to prepare your follicles to mature and release eggs.
- **Egg Retrieval:** You will have an egg retrieval procedure using an ultrasound-guided needle technique, under either intravenous sedation or general anesthesia.
- **Egg Fertilization and Selective Assisted Hatching:** Your retrieved eggs will be prepared and fertilized in the laboratory using your partner's (or donor's) sperm.
- **Embryo Transfer:** *Embryos* (fertilized eggs that are beginning to grow but are still microscopic) that result from the fertilization procedure will be transferred back to your body. To do this, a *catheter* (tube) will be placed through your *cervix* (uterine, or womb, opening) into your *uterus* (womb). The embryos will be transferred through this catheter.
- **After-Transfer Management:** You may receive medicines to support *implantation* (attachment of embryos to the wall of the uterus to achieve pregnancy) and early embryo growth.

Ovulation Induction

There are several possible medicines that may be used for developing follicles and maturing your eggs. Your University Reproductive Care (URC) doctor will discuss these choices with you. These medicines are given by injections that are either *intramuscular* (into the muscle) or *subcutaneous* (under the skin).

It is important that you stay in close contact with your IVF team during the time you are receiving these medicines and for at least 2 weeks afterward.

Monitoring

While you are receiving the medicines to stimulate your ovaries, you will be closely monitored by your IVF team. This monitoring may be as often as every day. It will include *venipuncture* (blood draw) and *transvaginal* ultrasound exams. In a transvaginal ultrasound, the ultrasound probe (*transducer*) is placed in your vagina. The probe produces sound waves, which create pictures on a screen.

If the monitoring shows that there is likely to be a low chance for successful egg retrieval, the induction cycle may be stopped and no egg retrieval will be done. On the other hand, if you are showing too much response to the induction medicines, they may be stopped and the cycle canceled to prevent the risks of overstimulation.

Either one or both partners may be asked to take an oral antibiotic during the first part of the induction cycle. This is to reduce the chance that bacteria may be present in the samples collected during IVF.

Triggering

During cycle monitoring, your doctor will determine when your follicles are ready for the final steps of maturation. In this step, also called “triggering ovulation,” you will inject a medicine 36 hours before having the egg retrieval procedure.

Egg Retrieval

The egg retrieval procedure is an *outpatient* procedure. You will not stay overnight in the hospital.

The procedure is done using a transvaginal ultrasound-guided needle technique to *aspirate* (draw liquid up from) the egg *follicles*. You will need sedation and/or anesthesia during this procedure.

In rare cases, these anesthetic medicines may involve risks to your organs. Your position during anesthesia may cause short-term or permanent nerve damage. You will be closely monitored by an anesthesia team during the egg retrieval procedure to minimize these risks. If your IVF team determines you should not have standard anesthesia, other forms of anesthesia may be used.

Guided by ultrasound, your doctor will insert a needle through your vaginal wall and into your ovary. The fluid inside your ovary will be drawn out through the needle. This fluid will be analyzed under the microscope to locate the eggs. The fluid from as many follicles as possible will be drawn out to search for an egg.

For a few women, it is not possible to reach the ovaries through their vagina. For these patients, *laparoscopy* or another abdominal procedure is needed to do the egg retrieval. In laparoscopy, a thin, lighted tube (*laparoscope*) is used to see inside your body and reach the ovaries from the abdomen. If you need a different procedure, your IVF doctor will talk with you about it before your egg retrieval.

During the egg retrieval, other procedures may be done to make the embryo transfer easier. These may include placing a “traction” *suture* (stitch) on your cervix to help straighten the canal around the cervix.

Your IVF team will decide whether you will need any of these procedures by doing a “mock transfer” before your IVF cycle begins. In a mock transfer, your doctor will insert a soft catheter into your uterus to mimic the actual embryo transfer. By doing this, potential difficulties can be discovered beforehand.

During egg retrieval, you may choose to have some eggs *cryopreserved* (frozen). This process allows you to have IVF at a later date. This may be an important option if you have cancer or a chronic disease. Not all eggs that are frozen will survive after being thawed and not all eggs that are thawed will accept sperm (these eggs will not fertilize).

Egg Fertilization

Sperm is collected from your male partner (or donor) before the egg retrieval. This sperm is used to fertilize your retrieved eggs. In some cases, sperm may also be collected before the day of egg retrieval to use as back-up. This sperm will be frozen in a process called *cryopreservation*.

After your egg retrieval, your eggs will be evaluated and prepared for the fertilization process by an *embryologist*. An embryologist specializes in the growth and development of embryos.

Fertilization may be tried in 1 of 2 ways:

- **Insemination:** The eggs are placed in a culture dish and are exposed to sperm that have been washed and processed.
- **Intra-Cytoplasmic Sperm Injection (ICSI):** A single sperm is directly injected into each egg. ICSI is more complicated than insemination and may be more costly. It may be used when the chances of normal fertilization by the insemination method appear low.

Your IVF team will decide whether you need insemination or ICSI, based on your history of infertility, fertility treatments in the past that have not worked, and your sperm and egg quantity or quality. They can answer your questions about this decision.

Selective Assisted Hatching

Your IVF team will evaluate your embryos with a microscope to decide whether “selective assisted hatching” should be done with any of them. This procedure is often done to prepare the embryo for implantation. The decision to do this procedure is based on the appearance of each embryo, the age of the female partner, and the female’s medical history.

You will be given the handout “Assisted Hatching,” and your IVF doctor will talk with you about it.

Embryo Transfer

About 3 to 5 days after egg retrieval, several of the embryos that develop will be transferred to the inside of your womb using a catheter passed through your cervix. There is no guarantee that any of the transferred embryos will result in pregnancy.

Your IVF team will decide how many embryos to transfer, based on guidelines that take into account your age, embryo quality, and other medical factors. The number they choose will allow for both the best chance of pregnancy and the lowest chance of *multiple gestation* (being pregnant with more than 1 baby at the same time). **You will be given a separate information handout from the American Society for Reproductive Medicine** titled, “Guidelines on number of embryos transferred.” Your IVF doctor will also talk with you about it.

Some embryos may be cryopreserved as *zygotes* (fertilized eggs, day 1), *cleavage-stage* embryos (day 2 to 4), or *blastocysts* (day 5 to 7) for possible use in a later IVF cycle. There are more steps and costs that are needed for embryo cryopreservation. **You will be given a separate information handout** about this if it is being considered, and your IVF team will talk with you about it.

After-Transfer Management

To increase the chances of successful implantation, you may be given the hormone progesterone. This will be given either by intramuscular injection, vaginal suppository, or vaginal pills. Usually, the progesterone is continued until pregnancy is confirmed by ultrasound, and it may even be continued for several weeks in early pregnancy. During that time, you may need to have hormonal evaluations as instructed by your IVF team.

Discarded Material

After the IVF treatment, there may be unused biological material (tissue), including sperm, immature or unfertilized eggs, and abnormal or *arrested pre-embryos* (embryos that have stopped developing).

These unused materials will be:

- Discarded
- OR
- Used for training purposes or in research for the advancement of medical science

If the material is used for training or research, no new embryos or pregnancies will be created. To protect patient privacy, all information that links you and your partner or donor to the biological material will be removed before the materials are used for training or research.

Please tell us if at any time you decide that you do not want to have unused tissues used in this way. Your decision will not have any effect on your participation in IVF treatment.

What are the options for extra embryos created from IVF?

If your IVF procedure results in too many embryos (more than the number selected for transfer), the extra ones may be cryopreserved, depending on their quality. To lower the risk of damaging these embryos during transport, they will be cryopreserved and stored at the embryology lab for the first few months after your IVF.

For long-term storage, the embryos will be moved to a commercial cryobank facility. That facility will assume and handle all responsibilities related to maintaining your embryos.

You will be given a handout “Embryo Cryopreservation” about this if it is being considered, and your IVF team will talk with you about it.

What are the benefits of IVF?

You might receive the following benefits from this treatment:

- Pregnancy
- Additional embryos may be cryopreserved for your future family-building

URC doctors and staff cannot guarantee that any of the steps in the process will succeed, that the treatment process will result in pregnancy, or that the pregnancy will result in delivery of a healthy full-term newborn. Only you can decide if the possible benefits of having IVF are worth the risks.

What are the possible risks and complications from this treatment?

- Ovulation induction medicines are given by intramuscular or subcutaneous injections. This may cause bruising and discomfort at the injection site.
- Ovulation induction medicines have some common side effects:
 - *Lupron*: fatigue, muscle and joint pain, and short-term menopause-like symptoms (headaches, hot flashes, mood swings, sweats, insomnia, fatigue, etc.).
 - *Clomiphene citrate*: hot flashes, abdominal distention, bloating, headache, and changes in vision.
 - *Letrozole*: hot flashes, dizziness, headaches, mild fluid retention, nausea and changes in bowel habits, joint and muscle pain, and fatigue. (Using this medicine for ovulation induction is called “off-label use.” This means this drug was not originally approved for this purpose, but it is legal to prescribe it for this use.)
 - *Gonadotropins* (such as Repronex, Menopur, Gonal-f, Follistim, Bravelle, Luveris): headache, breast pain, nausea and changes in bowel habits, abdominal pain, injection site reactions, and over-stimulated ovaries that can lead to *ovarian hyperstimulation syndrome* or OHSS, a condition that causes the ovaries to become swollen, which may result in fluid shifts in your body. **You will be given the handout “Ovarian Hyperstimulation Syndrome,”** and your IVF team will talk with you about OHSS.
 - *Human chorionic gonadotropin* (Novarel, Ovidrel): injection site reactions and OHSS.
 - *Progesterone*: injection site reactions, breast pain, nausea, bloating, constipation.
 - *Antibiotics*: vaginal yeast infections, nausea, or abdominal pain.
 - *Oral steroids*: long-term use may lead to osteoporosis and greater risk of getting infections; in short-term use (as for IVF), very few side effects are expected.

Also, some studies suggest that fertility medicines may increase the risk of developing ovarian cancer.

- While you are receiving the ovulation induction medicines described above, you may need to have blood drawn as often as every day. There is a risk of mild discomfort and bruising at the venipuncture site. Transvaginal ultrasound exams also may cause some discomfort, but there is no known medical risk from these.

Questions?

Your questions are important. Call your doctor or other UWMC health care provider if you have questions or concerns.

University Reproductive Care: 206-598-4225

Website:

<http://depts.washington.edu/obgyn/URC>

- Risks related to the egg retrieval procedure include:

- Infection
- Bleeding
- Rarely, injury to other abdominal and pelvic organs

If you develop an infection, you may need to be admitted to the hospital to receive IV antibiotics. If you develop vaginal bleeding, your doctor may need to stitch the site where the ultrasound-guided needle entered. In rare cases, if the bleeding is internal (in your ovary, uterus, or a blood vessel in your pelvis), or if your doctor suspects other organs have been injured, you may need to be admitted to the hospital. In the hospital, you will be monitored and may need a blood transfusion, and/or a laparoscopy or *laparotomy* (abdominal surgery) to stop the bleeding and repair the injury.

- The embryo transfer procedure may cause some cramping, discomfort, and possibly a small amount of bleeding. Rarely, infection occurs where the catheter was inserted. This may require antibiotic treatment.
- A higher number and quality of embryos transferred to the womb may lead to a higher chance of success with IVF. But, IVF in general puts you at higher risk for multiple gestation, and this risk is higher when more embryos are transferred.

The risks of multiple gestation include:

- Premature labor
- The delivery of premature infants who need intensive care and could have long-term complications from being born prematurely

Premature labor and delivery may also place the mother at greater risk for Cesarean section, bleeding, and infection.

- Sometimes, the IVF team may decide to cancel egg collection shortly before it is to take place. This is done when it looks like too few eggs will be recovered, when there are no live sperm found, or for other medical reasons.

What are the alternatives to this treatment?

You may decide not to have IVF treatment. You may decide to continue other fertility treatments, such as *ovulation induction* and *intrauterine insemination*. Other options include adoption or remaining childless.

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