

# IVF PROGRAM GUIDE

## Fertility Answers of Baton Rouge



*Welcome* to the Fertility Answers

Assisted Reproductive Technologies Guide. We recognize that fertility treatment, especially In Vitro Fertilization, can often be a difficult and confusing process that affects couples in many areas of their lives. Our IVF program is designed

with the intention of offering support and resources for each couple's unique medical, emotional, and financial needs.

The IVF process, from preliminary testing to the completion of a cycle, can last up to two months and requires a significant commitment of time and energy from everyone involved. To make this process easier, your medical team of physicians, embryologists, nurses, and other healthcare professionals will guide and support you through each step of your treatment plan.

Our office staff is available to help you understand your insurance benefits and the costs associated with an IVF cycle, prior to initiating therapy. We will also provide you with options for financing the procedure should you desire.

This IVF Program Guide will serve as an important reference tool as you progress through your treatment. It contains information your medical team will refer to often when giving you instructions for scheduling pre-screening tests, dosing, medications, scheduling ultrasounds and blood work, and finally, when discussing the actual IVF procedure. We recommend you bring this folder to all of your appointments to keep all your information together.

**If you have any questions, please call the IVF coordinator during our office hours. If she is not available, please leave a message with the secretary that you are an IVF patient and the IVF coordinator will return your call as soon as possible.** If you need to speak with her or the physician regarding an emergency, let the receptionist know this.

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## ASSISTED REPRODUCTIVE TECHNOLOGIES

The Assisted Reproductive Technologies (ART) are a group of treatment options used for couples with infertility that cannot be treated using simpler methods. These procedures have excellent success rates but require significant effort and can be expensive. For all of these reasons, advanced treatment options can be stressful. These natural stresses can be minimized if you understand the nuances of the various procedures. We encourage you to learn more and to freely ask questions of your medical team. Understanding the applications for each procedure will help you obtain the appropriate treatment and maximize your chance for success.

There are a number of different types of treatments encompassed under the ART umbrella. In Vitro Fertilization (IVF) is the procedure most commonly used. To better understand the procedures, it is important to understand the four basic components of an IVF cycle.

### IN VITRO FERTILIZATION (IVF)

#### 1. Ovulation Induction

Hormone injections are given to stimulate multiple egg production rather than the single egg normally produced by the body each month. This is done using one of several protocols. The most commonly used protocol called “Lupron Down Regulation” involves the following:

- a) Begin **oral contraceptives (OCP’s)** approximately a month prior to your IVF cycle **to suppress the ovaries.**
- b) Begin **Lupron** injections the week before your IVF cycle **to suppress the ovary so that ovulation does not occur before the desired time.**
- c) **Ganarelix or Cetrotide** is sometimes used instead of Lupron. This is started usually on stimulation day 5 or 6.
- d) Daily gonadotropin **injections** (Follistim, Gonal F, Repronex, Bravelle, Menopur, or others) are then added, beginning the third to fifth day of your IVF cycle **to stimulate the development of the eggs.** These are usually given subcutaneously (under the skin) and are much less uncomfortable than the medications used in the past.
- e) The progress of ovulation induction is monitored with ultrasounds and blood estrogen levels usually over 10 days.
- f) The **HCG injection** is then given **to enable the eggs to mature.** Before the eggs release on their own, we will remove them from the ovary in the “egg retrieval”.

#### 2. Egg Retrieval

An egg retrieval is performed by removing the fluid that contains the egg from the ovarian follicle using a needle specially designed for this purpose. This is a relatively minor procedure and is performed by visualizing the follicles with a vaginal ultrasound probe. A needle is directed alongside the probe, through the vaginal wall, and into the ovary. To avoid any discomfort, strong, short acting intravenous sedation is provided.

### 3. Fertilization and Embryo Culture

Once the follicular fluid is removed from the follicle, the eggs are identified by the embryologist and placed into an incubator. The eggs are inseminated with sperm later that day by combining sperm and eggs in a culture dish or by Intracytoplasmic Sperm Injection (ICSI).

During conventional insemination, eggs are placed in a culture media containing sperm and left overnight to undergo the fertilization process. The ICSI technique is used to fertilize mature eggs in the event of sperm or egg abnormalities. Under the microscope, the embryologist picks up a single sperm and injects it directly into the egg. ICSI allows couples with very low sperm counts or poor quality sperm to achieve fertilization and pregnancy rates equal to traditional IVF. It is also recommended for couples who have not achieved fertilization in prior IVF attempts. Special urological procedures are available for cases where it is difficult to obtain sperm or for men with no sperm in the ejaculate.

The day following insemination by either method, the eggs will be checked to document fertilization. They are now zygotes and are placed in growth media. In the following days, they will become pre-embryos. Pre-embryos may continue to grow for two or three days and then be transferred to the uterus, or they may be transferred to a second (sequential) media after three days and continue to grow until the fifth or sixth day when they reach the 60 to 100 cell stage and are called blastocysts. Blastocysts must be either transferred into the uterus or cryopreserved for later use. At Fertility Answers, actively dividing embryos (i.e. living embryos) are never discarded. They are either transferred to the uterus or cryopreserved.

### 4. Embryo Transfer

Most embryo transfers will occur on Day 5 or Day 6 after egg retrieval. They are placed through the cervix into the uterine cavity using a small catheter. This procedure usually requires no anesthesia, although a low dose of valium is occasionally given to help relax the uterus. Sometimes embryos are transferred on Day 3.

### 5. Freeze All Cycles

Sometimes all embryos are frozen and transferred at a later time. See the section on “Freeze All Cycles”.



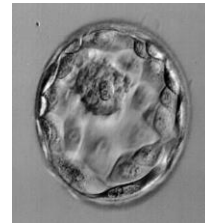
One day after fertilization



**2 cell embryo:**  
2 days after fertilization



**6 cell embryo:**  
3 days after fertilization



**Blastocyst:**  
5 days after fertilization

## **ADDITIONAL ADVANCED TECHNOLOGIES**

### **1. Assisted Hatching**

Assisted Hatching (AH) is a procedure performed prior to transfer in selected cases. An embryo must escape or “hatch” from its protein shell, called the Zona Pellucida, before it can implant in the uterus. In AH, the zona may be opened with a glass scalpel, a chemical, or a laser can be used to dissolve part of the zona, to facilitate the hatching process. This technique is often used with prior failed IVF cycles, female age over 35, and with abnormally thick zona.

### **2. MESA (microsurgical epididymal sperm aspiration) or TESE (testicular sperm extraction)**

Some men have no sperm in the ejaculate but still produce sperm in the testes. This may occur due to a vasectomy, to a congenital obstruction of the sperm ducts leaving the testes, or to inadequate development of the sperm such that they cannot leave the testes. In these situations, a urologist can remove sperm by placing a needle into the testes or the tubes that drain it. These procedures are done under anesthesia and can be very effective when combined with ICSI.

### **3. Cryopreservation**

Embryos that are not transferred but continue to thrive in the laboratory can be cryopreserved (frozen). All embryos that survive to the blastocyst stage will be frozen if they are not transferred. These embryos are stored in liquid nitrogen and can be thawed at a later date. While the pregnancy rates with frozen embryos are not as high as in “fresh” IVF cycles, the procedures patients must undergo in preparing for a frozen embryo transfer are much simpler and less expensive.

### **4. Egg Donation**

When a female patient is in her late 30’s and early 40’s, infertility may result from a decrease in ovarian function and a consequent fall in egg quality. In the event of a severe compromise in ovarian function, successful pregnancy is very unlikely. A treatment that often offers an excellent chance of success is to use eggs from a donor who is capable of producing good quality eggs. The egg donor may be another patient undergoing IVF who expects to have more eggs than she needs, a relative or friend, or a young woman paid to donate her eggs. In most cases, she should be less than 30 years of age. This is a complex treatment option from medical, psychological and ethical viewpoints, but one that provides a very good chance for pregnancy. Because of Louisiana state law, we cannot provide oocytes from paid donors, but can provide you with information about programs in other states. If you are interested in donor oocytes from a woman known to you, we are happy to assist you.

### **5. Embryo Screening**

We offer embryo screening in certain circumstances. Preimplantation genetic diagnosis (PGD) (also known as embryo screening) refers to procedures that are performed on embryos prior to implantation. PGD is considered another way to prenatal diagnosis. It makes it highly likely that the baby will be free of the disease under consideration. PGD thus is an adjunct to assisted reproductive technology, and requires in vitro fertilization (IVF) to obtain oocytes or embryos for evaluation.

Preimplantation genetic screening (PGS) is used to denote procedures that do not look for a specific disease but use PGD techniques to identify embryos at risk. So both PGD and PGS should be referred to as types of embryo screening.

## IVF LABORATORY PROCEDURES

### 1. Fertilization and Embryo Growth

As the eggs are retrieved, they are identified by the embryologist and placed into the incubator to avoid exposure to light, temperature, and pH changes. Brief notes are made on the condition of the eggs. Normally two-thirds to three-fourths of the eggs will be mature and ready to be inseminated or injected by ICSI. Immature or post-mature eggs that may be retrieved have a much lower fertilization rate. After retrieval, the eggs are left in the incubator to complete their very final stage of maturation. This normally occurs between four and eight hours after the retrieval. Prior to retrieval, a sperm sample is collected from the male partner and processed by density gradient washing techniques. This process allows us to collect the most viable sperm to be used for insemination or ICSI.



a)DAY 1: The day after retrieval, called Day 1, begins with the assessment of fertilization and the separation of those normally fertilized eggs. Cell division or cleaving will occur after the intermingling of the chromosomes overnight.

b)DAY 2: We typically see the second cleavage division from a two cell to a four cell embryo on Day 2.

c)DAY 3: A third cleavage division from a four cell to an eight cell embryo is seen in Day 3.

d)DAY 5 or 6: Embryos have reached the blastocyst stage and are now ready for transfer.

### 2. Embryo Assessment

High quality embryos will have reached a 2 to 4-cell stage on Day 2 and an 8-cell stage on Day 3 after retrieval and insemination. They will have a homogenous or non-grainy cytoplasm within the cells. The membranes should be very smooth and not rough or jagged. The cells should be approximately the same size, touch each other, and form a round ball within the zona pellucida or shell. The Zona Pellucida itself should be clear and not too thick. A common finding in embryos is fragmentation; individual cells within the embryo may have broken up and appear as fragments inside the zona. Less fragmentation is better. Prior to transfer, the embryologist will have evaluated the embryos for their morphological appearance and graded them on a scale of 1 to 4, with 1 being best. This assessment gives us a subjective estimate of the likelihood of implantation once the embryos are replaced into the uterus. Those that have the best characteristics and are cleaving normally are believed to have a higher chance of implantation; these will be chosen for transfer.

This assessment is subjective and embryos that have poor morphological characteristics still have the ability to implant, although in our experience, at a rate less than those with better characteristics. The

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number of embryos transferred depends on the cell number and quality of the embryos, the age of the woman, and the day of transfer (Day 3 vs. Day 5, 6).

Your doctor or embryologist will call you to notify you of the grade of the embryos and when they will be transferred.

### 3. Identification and Handling of Sperm, Eggs, and Embryos

Couples can be assured that the eggs, sperm, and embryos are always handled with trust, respect, expertise, and care. Our labeling process and a series of checks and balances are designed to ensure matching you to your eggs, sperm, and embryos. This is a constant priority throughout the IVF process. A review of the precautions and safe guards are outlined below for you information.

- a) Two days prior to the egg retrieval, the laboratory receives written confirmation of the patient's name and her partner's name from the IVF Coordinator. When the semen sample is collected on the day of egg retrieval, the partner is given a pre-printed label containing the patient's name, the partner's name, and the physician's name. In addition, the partner must fill out an Andrology Test Request Form indicating his name, his partner's name, their social security numbers, the time of collection, the number of days of sexual abstinence, and the purpose of sperm collection. If the specimen is collected outside of the hospital, appropriate identification (driver's license) will be required prior to accepting the specimen in the lab. Prior to processing the sample, the test tubes in which the specimen is to be processed are labeled with the partner's name, as well as with the same color of tape used to identify the couple's oocytes in the incubator. Additional special precautions are taken if donor sperm or donor eggs are used.
- b) Colored tape is used to uniquely identify the incubator location in which a given patient's oocytes reside. The tape is labeled with the patient's name and affixed to the incubator door. The same color of tape is also affixed to the patient's egg worksheet.
- c) Prior to insemination, the name on the test tube containing the partner's processed sperm specimen is cross-matched with the name of the petri dish containing the patient's oocytes by the insemination embryologist. The embryologist documents this verification process on the egg worksheet.
- d) Immediately prior to the embryo transfer, the laboratory is given a label containing the transfer patient's name, then the embryologist verbally verifies the patient's name and/or social security number with the patient. This verification is documented on the egg worksheet.
- e) Embryos not selected for transfer may be cryopreserved or cultured to the blastocyst stage. Any embryos developing to the blastocyst stage that are not transferred are cryopreserved. All unfertilized oocytes and unused sperm are discarded. All embryos that stop dividing before reaching the blastocyst stage are discarded. (These embryos are not viable.) **All embryos that are cryopreserved are again labeled to ensure the highest security possible.**

## WHEN IS IVF NEEDED?

### 1. Fallopian Tube Damage

The only options for treating significant tubal damage are surgical repair or bypassing the tubes with IVF. This decision must be carefully individualized in each situation.

### 2. Male Factor Infertility

One of the most dramatic advances in the treatment of infertility has been the capacity to obtain fertilization and pregnancy in the IVF lab with severely abnormal sperm samples by utilizing ICSI (Intracytoplasmic Sperm Injection). ICSI is often recommended if there is any suggestion of a sperm problem, if sperm are obtained surgically, or if there has been a prior failure of fertilization.

### 3. Endometriosis

Endometriosis may be effectively treated with a combination of surgical and medical therapy. Patients with endometriosis may also have anovulation. IVF is very effective as a second line of treatment if the initial treatment is unsuccessful.

### 4. Age Related Infertility

In normal reproductive life, a woman's ovarian function is diminished with age. In many cases, this reduced function can be overcome through the use of ovulation induction (OI) with oral medication or hormone injections (hMG/FSH) alone or with intrauterine insemination (IUI), without IVF. But when OI or OI-IUI are unsuccessful after three attempts, IVF alone or in conjunction with techniques such as Assisted Hatching and ICSI should be used. There are a variety of tests offered to test ovarian reserve or "fertility potential" called FSH, Inhibin B, or AMH. If any of these are abnormal, egg donation is usually recommended.

### 5. Anovulation

The majority of patients with anovulation will conceive using oral medication (such as Clomiphene Citrate or Letrozole/Femara). However, those patients not conceiving with this treatment may require gonadotropin injections (such as Follistim, Repronex, or Gonal F). To avoid the possibility of having more than twins, some couples will choose IVF. IVF is also initiated when pregnancy has not occurred after three cycles of gonadotropins.

### 6. Unexplained Infertility

Approximately 20% of couples will have no identifiable cause of infertility after completing a comprehensive evaluation. IVF is often successful when more conservative treatments have failed, especially since some of these couples actually have some block to fertilization (Inability of the sperm to penetrate the egg). Depending on age, it is customarily recommended that no more than three to six cycles of oral medication or three cycles of gonadotropins be attempted before moving on to IVF.



## POSSIBLE COMPLICATIONS

### 1. Ovarian Hyperstimulation Syndrome (OHSS)

A moderate degree of hyperstimulation with mild abdominal distention and discomfort develops quite frequently about a week after egg retrieval. This usually does not require any special treatment. About 1/100 ART cycles are complicated by severe enlargement of the ovaries in response to the high doses of hormones used to stimulate the development of multiple eggs. This may be associated with fluid accumulating in the abdomen and fluid and salt imbalances. Bed-rest and/or hospitalization may be required and these problems may be worsened or prolonged by pregnancy. IV fluids are helpful, as is removal of the accumulated fluid from the abdomen. This is accomplished by placing a needle through the vaginal wall into the abdomen under ultrasound guidance and local anesthesia. It is performed in the same way as an egg retrieval.

\*\*It is important for the patient to monitor signs of **OHSS**

- Monitor urine output: If you don't urinate at least 3-4 times daily or the urine becomes more concentrated, notify your doctor.
- Measure waist circumference daily.
- Increase fluids to at least one gallon per day. Try to drink electrolyte enriched drinks (Gatorade, V8 juice).
- Increase intake of salty foods (soups).
- Pelvic rest (no intercourse)
- No heavy lifting or strenuous exercise
- Elevate head of bed when sleeping.

**2. Multiple pregnancies:** The majority of these pregnancies are twins but triplets and even quadruplets can occur when three or four embryos are transferred. A multiple pregnancy carries increased risks to the mother and the fetuses. Blastocyst transfer of two embryos may reduce the risk of multiple births without reducing the overall chance of conception.

In the event of a high order multiple pregnancy (more than twins), there is a procedure known as selective reduction. The procedure is performed at about twelve week's gestation, because in 50% of triplet pregnancies and 70% of quadruplet and higher order pregnancies, the spontaneous loss of one or more fetuses occur. Patients who are interested in this procedure are referred to a specialized center. Selective reduction carries a small risk of loss of the entire pregnancy. There are clearly important ethical and psychological issues for you to consider prior to utilizing this technique. **High order multiple pregnancies can be practically eliminated by transfer of no more than two embryos.** An exception is if one of the embryos divides to become identical twins.

**3. Fertility drugs and ovarian cancer.** These drugs have been used since the early 1960's but the high doses, typically associated with IVF, began in the early 1980's. Most of the articles have shown no increase in the risk of ovarian cancer with the use of these drugs. However, two articles showed a possible association between ovarian cancer and Clomiphene (clomid, serophene) treatment, and received a great deal of media exposure. After a thorough analysis of all studies by the American College of Obstetrics and Gynecology, the American Society for Reproductive Medicine, and a number of epidemiologists, the conclusion was that the data remains unclear. Further study will be required to clarify any possible association.

## COMMUNICATION GUIDELINES

We would like your interaction with our team to be as pleasant and productive as possible. Below are some suggestions that we hope will enable you to utilize our services to your best advantage and help facilitate communication between you and our medical team.

1. The clinical staff is usually the first line of communication between you and your physician. Our IVF coordinator will be your main contact person. If you do not understand your treatment plan, the sequence of testing, implications of test results, or anything else pertaining to your care, do not hesitate to call.
2. Try to combine as many questions into one phone call as to make this service more efficient.
3. There may be instances when you need to speak directly with your physician. In these situations, be prepared to tell the receptionist why you must speak to your physician.
4. After a completed cycle, you have the opportunity to meet with the physician to review the details of the cycle. If you have significant concerns (either positive or negative) please let the physician know at this time.
5. This IVF cycle can be stressful. To minimize the stress, make certain you understand what is expected of you before the cycle begins.
6. You must leave the IVF coordinator a phone number so that you can be easily reached. The IVF coordinator can be reached by email for non-urgent messages.
7. You may also choose to communicate NON-EMERGENT issues with the office using our electronic medical records correspondence feature (eIVF, patient portal). If you are interested in this easy and convenient form of contacting the office or receiving lab results, please let the IVF coordinator know and she can give you instructions.

We encourage couples who are considering IVF to visit with a counselor or mental health professional, so that they may gain a better understanding of ways to cope with the emotional aspects of infertility, especially IVF. Whether you are at the beginning, the middle, or the end of the road to resolving your infertility, mental health professionals can serve as a valuable resource along the way. They can provide a list of reading materials, sometimes conduct support groups, and if necessary, will put you in touch with other couples who have had experiences similar to your own.

## PATIENT RESPONSIBILITIES

Our IVF team works hard to ensure you receive highly individualized care that will optimize your chances for becoming pregnant. We ask your assistance in making this process as efficient and as simple as possible by considering the following:

### **1. Be Proactive**

The IVF coordinator will be your resource during the IVF cycle in which you are undergoing. You will be given a list of required pre-screening tests. In many cases, all of these tests can be completed in one or two visits. It will be your responsibility to contact the office on the first day of your menstrual cycle to schedule these tests.

### **2. IVF Booklet**

Please read this IVF booklet. Most of the information that will be discussed by your physician is also included in this book. If you have questions regarding the IVF process, please refer to this booklet first. If you need more clarification, please call your IVF coordinator. Please bring this book to all visits.

### **3. Financial**

Please contact the office as soon as you know when you will be cycling and be sure that all arrangements including insurance preauthorization are complete prior to initiating treatments. You will not be able to begin your cycle until your financial arrangements have been finalized and any required deposits have been received. If your insurance coverage changes you must notify the financial office immediately.

### **4. Medications**

Please purchase all of your medication before you are planning to cycle. Some of the medications have been in short supply and are frequently difficult to obtain on short notice. When you are ready to start your IVF cycle, the IVF coordinator will design a cycle plan specifically for you and advise you which medications you will need according to your physician's instructions. Your medication will be ordered through a fertility mail order pharmacy which offers significant discounts on fertility medicine.

### **5. Injections**

You will review injection instructions with the IVF coordinator. Your mail order pharmacy will also send information with your medicine. Injection technique is also available for your convenience at [www.fertilityjourney.com](http://www.fertilityjourney.com).

### **6. Cycle Monitoring**

You will require frequent visits for ultrasound and endocrine hormone monitoring during your IVF cycle. It is very important that you come for your appointment at the scheduled time because other patients may be cycling at the same. Your early or late arrival could cause others to miss their assigned time. Failure to keep an appointed time on weekend visits may result in you paying additional charges. Please notify the staff when scheduling your appointment if you will have any problem in keeping your appointment.

## 7. Trigger (HCG injection)

During your IVF cycle, frequent changes may be necessary in the amount of medication you are taking. Decisions to change medication and to give HCG to trigger your ovulation are made by your physician. Changes in medication and the timing of your HCG injection and egg retrieval are critical to maximizing your chances of becoming pregnant. **You must be available in person by telephone to receive your instructions.** We cannot leave this information on an answering machine. If this medication is not given appropriately, you may have no mature eggs to retrieve (thus no pregnancy).

## 8. Consent Forms

You will be given consent forms when you initiate an IVF cycle. These consents describe the various medications and procedures that will be administered and performed during your cycle. Please review them carefully. **Before beginning Lupron you must have consent forms signed. The consents must be signed by an attorney that we have assigned or approved.** Please read and sign all consent forms, even if you think they do not apply in case at retrieval the embryologist should recommend additional laboratory procedures. If you have concerns about any issue in them, discuss this with your physician as soon as possible rather than on the day of egg retrieval or embryo transfer.

## 9. IVF Orientation

You will be given the opportunity to learn more about the IVF process and your medical team at an orientation. This class gives you a unique view of the procedure directly from the perspective of the physician, embryologist, and IVF coordinator. Your IVF coordinator will help you schedule the date most appropriate to your IVF cycle.

## 10. Legal Counseling for IVF Consents

Special legal issues arise during the process of IVF in the State of Louisiana. A Louisiana attorney who practices solely in the area of Assisted Reproductive Technology Law will review these issues with you and assist you in completing paperwork which will cover your legal rights and responsibilities. Special provisions need to be made to address the disposition of frozen embryos in Louisiana and your wishes will be made clear in your legally binding paperwork.

## 11. Understanding Infertility and Your Emotions

Treating fertility problems means taking care of not only physical needs but emotional ones as well. Infertility is recognized as a life crisis and can be a major source of stress. That stress is usually intensified during treatment; especially throughout an ART cycle. While this is not a mandatory requirement, we encourage all couples to meet with a mental health professional prior to beginning treatment, as well as during and after a cycle. If you are interested in meeting with a counselor or psychologist, please notify your IVF coordinator.

**Our physicians recommend pre-IVF counseling for all patients, but especially:**

- 1. ANY unmarried couples**
- 2. Couples where either partner has doubts about parenthood.**
- 3. Couples who have had marital problems in the past.**

4. Couples with at least one partner with significant psychological problems- including depression and anxiety.
5. Couples with at least one partner with children from prior relationships.
6. Couples with outside stressors (family issues, legal issues, etc.)

## IVF PRE-SCREENING TESTS

It is critical that an assessment of any potential obstacles to achieving a pregnancy be reviewed before initiating an IVF cycle. This involves testing of both the male and female partners. The following is a description of commonly performed IVF pre-screening tests. Not every test is done on every person, but some tests are mandatory. Your physician will determine which tests need to be performed before initiating a cycle. Your IVF coordinator will provide a list of tests that will be required for your cycle. All tests must be scheduled in advance.

### **Female Testing**

#### **1. Ovarian Function Tests**

An essential aspect of the IVF cycle is the ability to recruit and retrieve multiple follicles. The type and amount of ovulation induction (OI) drugs you will need during your IVF cycle is individualized based on hormone levels and the number of follicles present with the cycle before you begin OI drugs.

- a. Day 3 Blood Work-tested on Day 3 of menstrual cycle (day 1 is day of first full flow)
  - FSH (follicle stimulating hormone)
  - E2 (estradiol)
- b. Day 3 Ultrasound-performed on Day 3 of menstrual cycle
  - Number of small (antral) follicles

A more sensitive measure of ovarian function can be obtained by performing the following labs

- c. Anti-mullerian hormone and/or Inhibin B on cycle day 3

#### **2. Evaluation of the Uterine Cavity**

The embryos that develop in the lab during an IVF cycle will ultimately be placed into the uterine cavity. Therefore, it is critical that the cavity is normal. This is evaluated by a hysterosalpingogram (HSG), uterine saline instillation (USI), or a hysteroscopy. These tests are scheduled between the end of menses and the onset of ovulation. Only one of them is needed.

- **HSG** - X-rays the flow of dye through the uterus and the tubes. These tests are usually performed in the Radiology Department of the hospital.

- **Uterine Saline Instillation** - Ultrasound of the flow of saline instilled through your uterus. This test is performed in our office.
- **Hysteroscopy** - Viewing of the uterine cavity through a lighted scope. Abnormalities of the cavity, such as polyps or fibroids, may be removed at the same time. This test is usually performed in the operating room.

### 3. Trial Embryo Transfer

It is essential that the embryos are transferred into the uterine cavity easily, without disrupting the intrauterine environment. The trial embryo transfer can identify cervical or uterine irregularities that may interfere with the transfer of embryos into the uterus. During this simple office procedure, a special catheter is passed through the cervix into the uterus, measuring the angle and shape of the cervical canal, as well as the uterine depth. Catheter location is sometimes confirmed by an ultrasound. This test is performed at the end of menses and before ovulation.

### 4. Infectious Disease Testing and Immunity Screening for female patients.

Blood testing on both partners is required to rule out Hepatitis and HIV exposure. Negative infectious disease results must be documented every twelve months.

- Hepatitis B Surface Antigen
- Hepatitis C Antibody
- RPR (Serology)
- HIV 1
- Chlamydia/Gonorrhea
- Rubella Antibodies, IgG
- Blood Group and Rh
- Varicella Antibody, IgG
- Antibody Screen

## Male Testing

### 1. Semen Analysis and Wash

A semen analysis must be completed prior to the IVF cycle. **Please contact our lab to schedule this test between Monday and Friday.** The specimen may be brought from home or collected in the office. It should be collected in the same manner as it will be collected the day of egg retrieval. \* Please check with IVF coordinator regarding specific instructions prior to collecting.

### 2. Infectious Disease Testing

Blood testing on both partners is required to rule out Hepatitis and HIV exposure. Negative infectious disease results must be documented every twelve months.

- Hepatitis B Surface Antigen
- Hepatitis C Antibody
- RPR (Serology)
- HIV 1

## **Are you interested in screening for potential inherited diseases?**

At Fertility Answers, we offer pre-conception testing to see if parents are carriers for serious and even life-threatening diseases. Even though every couple has a 2-3% risk of birth defects, some couples are at *increased risk* for inherited diseases. Certain ethnic groups are at increased risk for carrying the traits of specific diseases. Examples of these include:

1. Caucasian / European: 1 in 28 risk for Cystic Fibrosis
2. African American: 1 in 12 for Sickle Cell Disease
3. Cajun and French Canadian: 1 in 30 risk of Tay-Sachs disease.
4. Ashkenazi Jewish: 1 in 16 for Gaucher's Disease; 1 in 31 risk of Tay- Sach's Disease

### **Many Genetic Diseases Are Preventable**

Each year millions of healthy parents are taken by surprise when their children are born with life-threatening genetic disorders. These parents are *carriers*: healthy individuals who nevertheless have a mutant version of a critical gene. *Every* can undergo genetic testing before pregnancy. Early testing is the *only* way to know if your pregnancy will be at high risk, and to allow you and your doctor to take specific actions to conceive a healthy child.

If you AND your partner are both carriers, your embryos can be tested prior to transfer if they are affected by this genetic disease. Only healthy embryos will then be transferred.

## **TYPICAL IVF STIMULATION**

Your primary physician will prescribe a medication protocol after careful review of your medical history and pre-screening test results. Below are the primary protocols used in our office for IVF stimulation. Because each patient's protocol or treatment plan is individualized in our practice your stimulation schedule may vary slightly.

### **Lupron/Ganirelix/Cetrotide Suppression Protocol**

**Pre-operative Visit:** A pre-operative visit is usually needed before your IVF treatment begins.

During this visit, you and your doctor will discuss the treatment plan. You may visit with other members of the health care team such as IVF coordinator and/or financial counselor. Sperm counts may also be reviewed. If donor sperm is to be used, you will need to select a donor prior to starting your IVF cycle.

#### **First Month**

**Day 1-3:** Call the IVF coordinator no later than the third day of full flow. The coordinator will tell you when to begin your birth control pills. Consult your calendar to determine when you begin your Lupron. After you finish the last pill, you will begin your period within a few days. **This bleeding is normal.**

\*\*The first month is skipped in most cases if Ganirelix or Cetrotide is to be used suppression. Your personal calendar will give you specific instructions.

**Second Month – Stimulation Protocol**

**\*\*THIS IS STIMULATION DAY 1\*\***

- Payment for cycle and consents due.
- Ultrasound and blood work.
- Expect a call from the office after each visit with dosing instructions.
- Start Follistim/Gonal F/Repronex, plus other drugs, if appropriate (e.g., Metformin, Dexamethasone, Prolactin, or baby aspirin).
- Reduce Lupron dose if appropriate.

**Stimulation Day 2 & 3:**

- Continue Gonadotropin and Lupron.

**Stimulation Day 4 or 5:**

- Ultrasound and blood work
- \*WEEKEND APPOINTMENTS-Review cycle response with IVF coordinator and/or physician.
- \*WEEKDAY APPOINTMENTS- Expect a call from the office after each visit with dosing instructions.
- Reduce, increase, or continue Gonadotropin dosage as directed.
- Continue Lupron.
- If Ganirelix or Cetrotide is used instead of Lupron, they will be started on Day 3 to 6 depending on your diagnosis.

**Stimulation Day 6 &7:**

- Continue gonadotropins and Lupron.
- Possible ultrasound and blood work.

**Stimulation Day 8:**

- The earliest day that HCG is given to trigger ovulation.
- Possible ultrasound and blood work.
- Continue gonadotropins and Lupron as directed, if HCG is not given.

When your eggs are mature usually around Stim Day 10, you will be instructed to take HCG injection 36 hours prior to the scheduled egg retrieval. The timing of the HCG injection is critical. If you take it more than 1 hour after you are told, you must notify the office so we can adjust the timing of the egg retrieval. If you do not take the HCG correctly, the entire cycle is in jeopardy. It is essential you understand how to do this. Egg retrieval is usually performed 10-15 days after starting your stimulation medicine. Keep in mind each cycle is unique and some retrievals may occur before or after these days.

**\*\*\*YOU MUST LEAVE A PHONE NUMBER WITH THE IVF COORDINATOR SO THAT YOU CAN BE EASILY REACHED OR YOU MAY CHOOSE OUR ELECTRONIC MEDICAL RECORDS CORRESPONDENCE FEATURE (eIVF, patient portal).**



## SINGLE EMBRYO TRANSFER (SET)

Traditional IVF stimulation protocols were originally designed to obtain multiple eggs (oocytes) to work with in the laboratory in order to eventually have several embryos available for transfer or cryopreservation. This was necessary because successful conception was much more likely if more than one embryo was transferred at the same time. Part of the reasoning behind this strategy was to compensate for the known fact that 50% of human embryos have abnormal numbers of chromosomes within them. (This remains true whether fertilization takes place in the body or in the laboratory). As IVF techniques became more refined and the chances of successful conception greatly improved, the incidence of multiple gestations (twins, triplets, or more) began to climb precipitously. Such success comes with a cost: it is obviously a risky pregnancy for the mother but it is frankly dangerous for the babies that are part of a multiple gestation. Many of these fetal risks are life-long or, in fact, life-threatening. Over the years, the number of embryos transferred per cycle has decreased but the multiple gestation rates remain unacceptably high.

**Single Embryo Transfer (SET)** reduces these risks enormously. However, it is impossible to identify which embryos are chromosomally normal simply by looking at them with a high-powered microscope. It is now possible to reliably check the chromosome numbers of an embryo before selection for transfer. This technique is called **Pre-implantation Genetic Screening (PGS)**. Incorporation of this technique into IVF imparts the same chance of successful conception as would transfer of two or more embryos without incurring the risks of high order multiple gestations. This technique is also very useful for women who are at higher risk of having chromosomally abnormal embryos due to advanced maternal age. By avoiding unwitting transfer of abnormal embryos, the chance of miscarriage is greatly reduced.

Be sure to discuss PGS and SET with your physician if you are interested in optimizing your chances for a healthy and safe pregnancy via IVF.

## MINIMAL STIMULATION IVF (“Minimal Stim IVF”)

For the most part, “mini IVF” or **Minimal Stimulation IVF**, is similar to typical IVF in the procedures used during treatment. As with IVF, you have monitoring throughout the cycle, egg retrieval, fertilization in the lab of the egg and sperm, and embryo transfer.

What’s different is how much medication is used to stimulate the ovaries to produce eggs. While typical IVF aims to produce several eggs for retrieval, Minimal Stim IVF uses weaker medications or lower doses of medications to produce only a few eggs.

During **Minimal Stim IVF**, clomid or letrozole may be used to stimulate the ovaries, instead of gonadotropins. (Gonadotropins include medications like Follistim) Alternatively, lower doses of gonadotropins may be used, with the aim of producing only a couple eggs.

## **Fertility Answers IVF Guide – Baton Rouge**

For some women, it's also possible to do Minimal Stim IVF with no ovulation stimulation drugs. This is sometimes also known as a "natural cycle." This wouldn't be appropriate if there are any problems with ovulation preventing pregnancy, but it may be an acceptable choice in cases of blocked fallopian tubes and some cases of male infertility.

Besides ovarian stimulation drugs, you also may need to take a GnRH antagonist (like Anatagon and Cetrotide), which prevents ovulation from occurring too early, before your doctor has a chance to retrieve the eggs from your ovaries.

To qualify for Minimal Stim IVF, patients are usually under 35 years of age and have proven fertility (such as patients with a tubal ligation, desiring more children) or have proven good egg quality. Some patients choose Minimal Stim IVF to save money. Others choose this option to minimize the chance of having extra embryos to cryopreserve (freeze).

The cost of Minimal Stim IVF is usually significantly less than traditional IVF. Contact our financial office for details of the cost.

The success rate of Minimal Stim IVF is usually lower than standard IVF. It is dependent on the quality of the embryos transferred.

## **FREEZE ALL EMBRYOS IVF CYCLES**

In a traditional in vitro fertilization (IVF) cycle, eggs are fertilized the day of the egg retrieval and the fertilized eggs (embryos) grow in the laboratory until the best quality embryos are transferred three or five days after the egg retrieval. This is referred to as a “fresh” transfer.

Some patients who undergo ovarian stimulation for IVF do not have a fresh transfer of the embryos, three to five days after the egg retrieval. This is referred to as a “freeze all” where the good quality embryos that are produced are frozen. When there is a planned or unexpected “freeze all” embryos cycle, the developing embryos are frozen by a process called vitrification and stored until they are transferred at a later time.

In the past we preferred to perform fresh embryo transfers for most patients because the embryos had a better chance of implanting and developing into a baby than frozen embryos did. However, for the past 5 years techniques for freezing and transferring the embryos have improved so much that frozen embryos now have an equal or perhaps better chance of implanting than fresh embryos.

### **Some of the reasons for freezing all of the embryos for a later transfer:**

- Planned storage of embryos prior to receiving medical treatment, such as chemotherapy for cancer that can affect future fertility by damaging the eggs in the ovaries. This can also be done for eggs if you are not ready to make embryos.
- To prevent the risk of developing ovarian hyperstimulation syndrome in patients that have developed many follicles and have a high estradiol level. Ovarian stimulation syndrome is a potentially dangerous condition that is increased and worsened when a patient becomes pregnant. By freezing the embryos and transferring them after the ovaries are no longer stimulated it reduces the chances of this condition.
- Preimplantation Genetic Screening or Diagnosis. Some patients chose to have their embryos tested to see if they have a normal set of chromosomes, or to see if they do not contain specific genetic mutations that can cause a disease, such as cystic fibrosis. This testing can be done on embryos by removing a small portion of the embryo and testing the genes in the cells removed. The embryos are frozen after the biopsy and are later transferred once the results from the testing are available. Embryos with a normal set of chromosomes have a very high rate of implanting in the uterus and developing into a baby.
- Physician or patient preference. Some physicians recommend that patients plan to freeze all of their good quality embryos because they think they have a better chance of implanting and developing into a baby than embryos transferred after ovarian stimulation and egg retrieval. There is a concern that the high hormone levels associated with ovarian stimulation might affect the lining of the uterus, making it less likely to for the transferred embryos to implant. We see this particularly in patients who develop higher progesterone levels earlier in the ovarian stimulation cycle.

## POSSIBLE OUTCOMES OF EVERY IVF CYCLE

These percentages are estimates. Every patient has unique circumstances which may improve or worsen her chances of a healthy outcome.

1. Failure to respond to medication (cycle cancelled) - 10%
2. Over respond to medication (cycle cancelled) - 1%
3. No eggs retrieved from follicles (empty follicle syndrome) - <1%
4. No eggs are fertilized - 1%
5. Fertilized eggs fail to develop (no embryos transferred) - 1%
6. Embryos don't implant after transfer (no pregnancy) - 30%
7. Pregnancy of patients < 35 years old - 55%

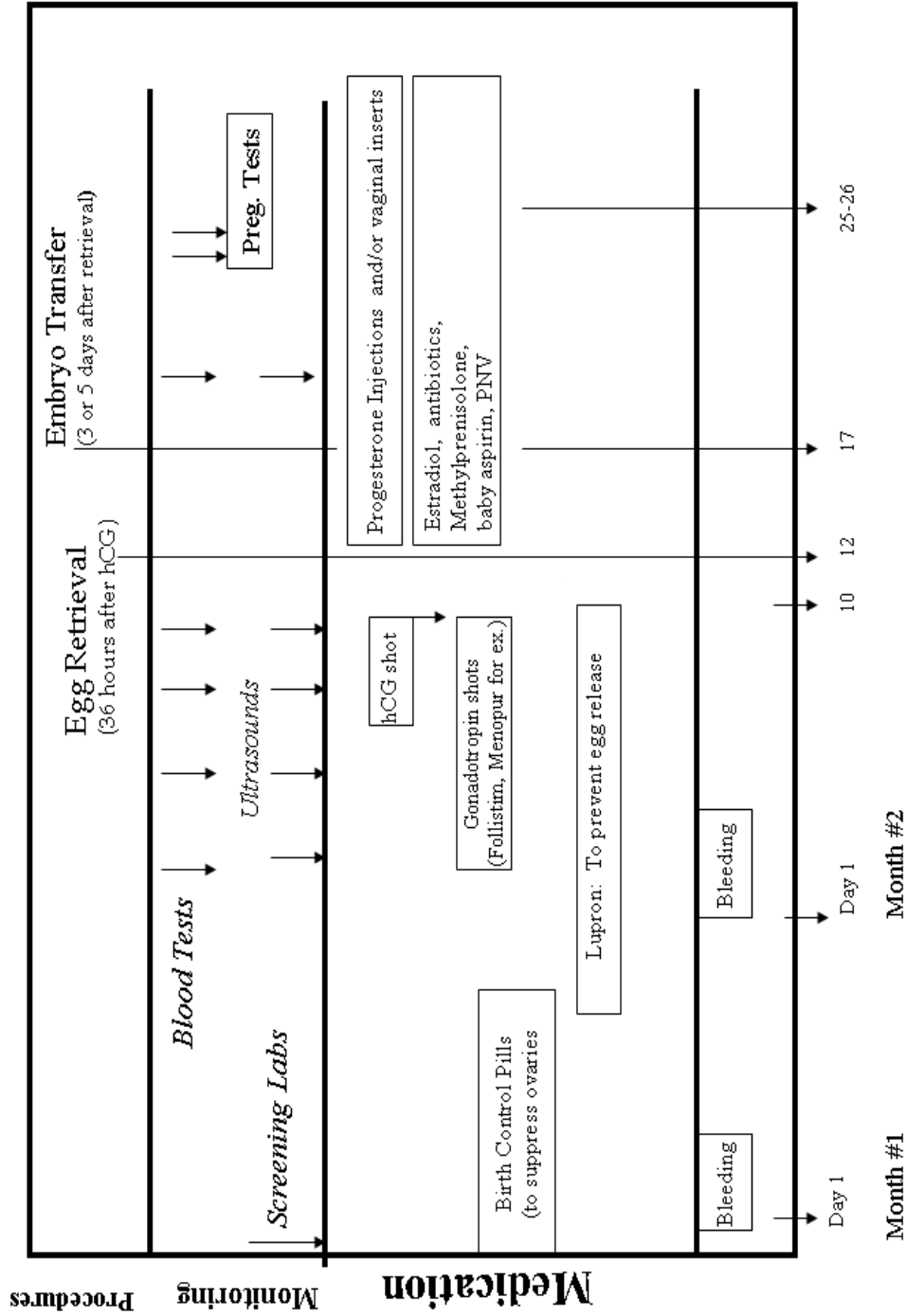
Of the patients that conceive:

- a. 60% singleton
- b. 30% twins
- c. <1% triplets
- d. 10% miscarriage

## INFERTILITY RESOURCES ON THE INTERNET

1. **The Fertility and Women’s Health Center of La.**
  - a. [www.fertilityanswers.com](http://www.fertilityanswers.com)
2. **Center for Disease Control National and Center Specific IVF Pregnancy Rates**
  - a. [www.cdc.gov](http://www.cdc.gov)
  - b. [www.SART.org](http://www.SART.org)
3. **American Society for Reproductive Medicine**
  - a. [www.asrm.org](http://www.asrm.org)
4. **Child of My Dreams, Premier Online Infertility and Adoption Resource**
  - a. [www.child-dreams.com](http://www.child-dreams.com)
5. **RESOLVE**
  - a. [www.resolve.org](http://www.resolve.org)
6. **Fertility Resources**
  - a. [www.fertilitycommunity.com](http://www.fertilitycommunity.com)
  - b. [www.fertilityjourney.com](http://www.fertilityjourney.com)
7. **Adoption Resources**
  - a. [www.adoption.org](http://www.adoption.org)
  - b. [www.adoptivefam.org](http://www.adoptivefam.org)
8. **Pregnancy Loss: SHARE support groups**
  - a. [www.nationalSHAREoffice.com](http://www.nationalSHAREoffice.com)
9. **How to mix injectable medicine**
  - a. [www.fertilityjourney.com](http://www.fertilityjourney.com)
10. **Genetic Testing**
  - a. [www.Counsyl.com](http://www.Counsyl.com)
  - b. [www.Natera.com](http://www.Natera.com)

# TYPICAL IVF SCHEDULE



## MEDICATION

Medication	Purpose	Amount Needed	Begin	Administered	Possible Side Effects	Dosing Direction	Notes
ANTONIST Lupron	Suppress ovaries	1 - 2 vials	9 days after LH surge	Sub-Q injection	Hot flashes, headaches, lethargy, sleep disturbances	Depends on protocol	Call nurse w/ period to determine exact date
ANTAGONIST Ganirelix Cetrotide	Suppress Ovaries	5 vials	Stim day 5	Sub-Q injection	Hot flashes, headaches, lethargy, sleep disturbances	Depends on Protocol	Call nurse w/ period to determine exact date
GONADOTROPINS: Gonal F Menopur Follistim Luveris Bravelle	Stimulation of multiple eggs	20-80 ampules	After initial suppression	Sub-Q injection IM injection	Hyperstimulation syndrome	1-8 amps daily individualized	
HCG: (Pregnyl Novarel, or Ovidrel)	Egg maturation	1 vial	Determined by follicle size	Sub-Q injection	Hyperstimulation	10,000 units	
Cefadroxil	Prophylactic Antibiotics	8 capsules	Day of retrieval	Oral	Systemic reaction if allergic to penicillin or cephalosporin	1 tablet 2 times a day x 4 days	
Prednisone	Enhances implantation	4 tablets	Evening of egg retrieval	Oral	Contraindicated in certain individuals	16 mg. Take 1 tab each evening for 4 days	Substitute drug will be ordered if necessary
Progesterone in oil	Implantation support	2 vials	As directed	IM injection	Discomfort at injection; Painful injection; Reaction to sesame oil	As directed Individualized	Do not stop progesterone unless instructed otherwise
ESTRADIOL: Estrace or Femtrace	Hormone replacement	100 tablets	As directed	Oral	Allergic reaction	Varies	Continues if pregnant
PROGESTERONE: Endometrin Crinone Prometrium Progesterone Suppositories	Hormone replacement	Varies	Night of egg retrieval	Vaginal insertion	Vaginal irritation or discharge in sensitive people	As directed Individualized	Only if instructed
Baby Aspirin	Pregnancy support (some patients)	1 bottle 81 mg. Tablets	As directed	Oral		As directed. Individualized	Stop when fetal heartbeat is detected
Prenatal Vitamin	Pregnancy support	As directed	At initial visit	Oral	Nausea	As directed	