



## Information on In Vitro Fertilisation (IVF) & Embryo Transfer (ET)

IVF & ET was originally developed to treat women with irreparably damaged Fallopian tubes. It allows those stages of conception which usually occur in the tubes - oocyte (egg) collection, fertilization and early embryo development - to be performed in the laboratory i.e. in vitro. It is now widely used to treat most forms of infertility including endometriosis, male infertility, immunological infertility, and idiopathic or unexplained infertility. In a first treatment cycle, IVF-ET may be the method of choice as it provides evidence of whether the couples gametes (eggs and sperm) are capable of completing the process of fertilization and producing a dividing embryo.

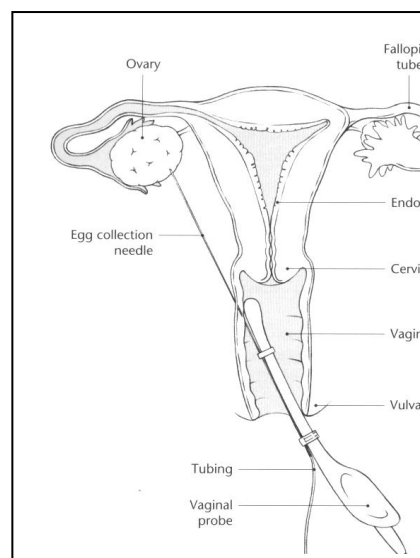
### PROCEDURE

#### 1. Stimulation of Ovarian Follicular Growth

Your chances of achieving a pregnancy are increased by the production of more than one embryo. Furthermore not all oocytes fertilize in vitro. Therefore, to obtain several embryos, your ovaries will be hormonally stimulated to produce a number of oocytes rather than the usual one. The medication for ovarian stimulation varies. You may have Nafarelin Acetate (Synarel) nasal spray or Leuprolide Acetate (Lucrin) daily injections from around either Day 20 of your cycle preceding the treatment cycle or Day 2 of the actual treatment cycle. This is followed with daily injections of pure Follicle Stimulating Hormone (FSH) commencing between Days 2-6 of the treatment cycle. It is possible that your doctor may prefer to use oral Clomiphene Citrate (Clomid) tablets followed by daily injections of FSH. A further variation involves the use of a drug known as Cetrorelix (Cetrotide) or Ganirelix (Orgalutran) given as injections midway during FSH injections to prevent natural ovulation. In some cases IVF-ET is done as part of a natural cycle - there is a separate information sheet for natural cycle treatment. There is NO standard treatment. Your doctor will individualize your treatment according to your requirements and may vary it along the way according to your response as measured by blood tests and/or ultrasound scans. These blood tests and scans tell us the ideal time to perform the oocyte "pick-up". Oocyte maturation is triggered with an injection of Human Chorionic Gonadotrophin (HCG) and oocyte "pick-up" is arranged for around 36 hours later so that you will have at least that much notice of going to hospital.

#### 2. Oocyte Collection or "Pick-Up" (OPU)

Oocyte pick-up is usually performed under a general anaesthetic. The procedure is known as TRANSVAGINAL ULTRASOUND OPU. Using a vaginal ultrasound probe the your doctor identifies the follicles which have developed on your ovaries. An aspirating needle is passed along the vaginal probe and through the upper vagina. The contents of each follicle are in turn aspirated and passed to the scientist who identifies the oocytes. Not all follicles contain a mature or retrievable oocyte and the number of follicles provides a rough guide only to the number of oocytes which can be expected to be found. You can expect to be awake and dressed within an hour or two of the procedure and ready to go home in another hour or so. As is the practice after all surgical procedures you are advised not to drive a vehicle for the remainder of the day. It will therefore be necessary for you to have some family member or friend to drive you home once you are fully recovered. On rare occasions, for particular medical reasons, your doctor may prefer to collect the oocytes by a LAPAROSCOPIC approach. Details of this procedure can be found in the information sheet on Gamete Intrafallopian Transfer (GIFT).



#### 3. Fertilization of the Oocytes

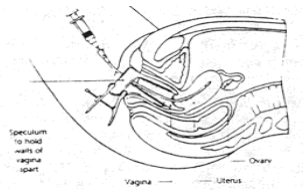
Once oocytes are collected, sperm are added to them some hours later. The scientist will arrange an agreed time for a semen specimen to be provided, usually an hour or two after the egg pickup. A dedicated room is available for semen collection. Semen is collected by masturbation, the best sperm isolated, and a controlled number added to the oocytes. If you suspect that there will be any difficulty in the collection of the semen PLEASE discuss it with your doctor, the QFG Office, or the scientist BEFOREHAND. There are a number of alternatives to cope with this not uncommon problem. The oocytes are checked the following day for signs of fertilization. It is quite easy to miss these early signs so if nothing is seen the oocytes are kept in culture until the second day after collection. At this time they will have divided if they are fertilized and there will be no doubt. Abnormally fertilized oocytes will be discarded at this time unless you have given us prior instructions to the contrary. Oocytes and embryos are cultured in, and transferred in, culture medium containing a small percentage of the protein albumin which is sourced from human blood screened for infectious disease. Should this concern you, you should discuss the matter with your doctor.

#### 4. Embryo Transfer to the Uterus

Somewhere between the second and sixth day after the eggs were collected, dividing embryos are transferred into the uterus using a fine catheter gently passed through the cervix. The procedure is performed in a matter of minutes and no anaesthetic is required. It will be done in an operating theatre. There is an information sheet on Day 5 Blastocyst Embryo Transfers. As recommended by the Fertility Society of Australia couples under the age of 40 years may have a maximum of two embryos replaced in any treatment cycle. Those under 35 years of age are recommended to have no more than one embryo transferred at the first attempt. This is to reduce the risk of multiple pregnancy. You should discuss with your doctor the number of embryos to be replaced beforehand. Any excess good quality embryos will be frozen for your future use unless you direct us otherwise. Poorer quality embryos which the scientists feel will not survive the freeze/thaw process are not frozen. In most cases it is possible for your husband to be with you during the transfer. Occasionally, if your ovaries have responded excessively to the

### *Embryo Transfer to the Uterus (Continued)*

stimulation and a large number of eggs have been obtained, your doctor may decide that it is unwise to proceed with an embryo transfer due to the risk of your developing ovarian hyper-stimulation syndrome (OHSS). In such cases the embryos will be frozen for your later use. QFG has a separate information sheet on OHSS.



## **5. Follow-Up Treatment After Embryo Transfer**

We suggest you rest at the Day Surgery for a short while after your embryo transfer.

## **6. Luteal Phase Support**

Several days after embryo transfer your doctor may give you further injections of HCG and/or vaginal Progesterone Gel or Pessaries to maintain your uterus in a receptive state for embryo implantation and pregnancy. Some patients do not require any luteal phase support.

## **PREGNANCY**

If your period does not occur at the usual time you should contact your doctor to arrange a pregnancy test 14-18 days after the embryo transfer. Please notify your local QFG Office of the outcome of your treatment. In recent years IVF-ET cycles having up to two embryos transferred have yielded a pregnancy rate per transfer exceeding 45% in patients under 35 years of age and around 11% for those aged 40 years and over. Many factors such as your age, the number of embryos transferred, the cause of your infertility, and whether you smoke will influence these rates and you should discuss with your doctor your individual chances.

## **POTENTIAL PROBLEMS ASSOCIATED WITH ART**

IVF-ET treatment is complex and problems can arise at each step.

### **1. Inadequate Ovarian Response to Stimulation**

2%. Your treatment cycle is cancelled before pick-up due to unsatisfactory response by your ovaries to hormonal stimulation.

### **2. No Eggs Collected**

1%. At oocyte collection we fail to obtain any oocytes. This is more common in "natural" unstimulated cycles.

### **3. Oocytes do not Fertilize**

5%. The aspirated oocytes fail to fertilize in vitro. This occurs most frequently when the sperm are of reduced quality.

### **4. Pregnancy Rate**

Up to 40% (see above). Factors such as your age, the number of embryos available for transfer, and the cause of your infertility can reduce this potential success rate. Should you fail to become pregnant we usually prefer you to wait several months before attempting IVF again to allow your body to return to normal after the ovarian stimulation. Failure to become pregnant does not significantly reduce your chances of achieving a pregnancy on a future treatment cycle.

### **5. Pregnancy Loss**

20% of pregnancies will not be on-going due to miscarriage or ectopic pregnancy. This rate will vary according to many factors such as your age, the cause of your infertility, and whether you smoke.

### **6. Ovarian Hyperstimulation Syndrome**

2%. Your ovaries become swollen and painful some days after embryo transfer. In the mild form there is lower abdominal pain, nausea and some breathlessness while in the rare severe form the complications can cause serious illness requiring hospitalization. This is more frequent in patients who become pregnant. You should contact your doctor immediately if you encounter any of these symptoms after embryo transfer. There is an information sheet available on OHSS.

### **7. Post-Operative Complications Following Transvaginal Oocyte Collection**

2%. Occasionally post-operative complications arise. If any of the following symptoms occur: high temperatures over 38°C, severe pelvic pain which does not settle following pain relief or a vaginal discharge heavier than spotting which may or may not be offensive, it is important to contact your IVF doctor immediately. If your own IVF doctor is uncontactable you should contact the QFG Office or any other QFG IVF doctor.

### **8. Multiple Pregnancy**

20%. If we replace two embryos there is a 20% chance of a multiple pregnancy. A rare case will have triplets the balance being twins. You should discuss any concerns that you have about this with your doctor and seriously consider the transfer of only one embryo to avoid a multiple pregnancy. QFG has an information sheet on risks associated with multiple pregnancy.

### **9. Congenital Abnormalities**

While national data collections on outcomes of IVF treatments have failed to show any increased incidence in congenital abnormalities following IVF, there is continuing surveillance. That concern is greater with more intrusive procedures such as sperm microinjection by ICSI. It is also possible that male infertility may be passed on to male offspring. If you have any concern about this or consequences of the procedures we encourage you to discuss them with your infertility doctor.

### **10. Stress and Coping**

IVF treatment may engender psychological stress. This is normal for most couples and support systems are available. Information is available from your IVF doctor or your local QFG Office Ph: 1800 734483.

## **FROZEN EMBRYOS NO LONGER REQUIRED**

If at a later date you do not wish to use any of the frozen embryos resulting from the in vitro fertilization, your options include donating them to another infertile couple or thawing them and allowing them to succumb.