Yorkshire Fertility
Individualised Care Closer To Home

NHS

Get to know about:
IVF
In Vitro Fertilisation
and
ICSI
Intra Cytoplasmic Sperm Injection

Author: Yorkshire Fertility Date published: April 2021 Version no: 3.0

IVF & ICSI

Introduction

This information leaflet explains what happens in normal conception, and provides details on a technique that comes under the umbrella heading of “assisted conception” - In-Vitro Fertilisation or Intra Cytoplasmic Sperm Injection.

The aim of this leaflet is to provide you with enough information so that you can make an informed decision about whether or not you wish to proceed with the treatment that has been suggested.

Please bring this leaflet with you when you attend for your appointments. You may find it helpful to underline/mark the areas that you would like to discuss further.

Normal Conception

In most women, one egg is released during every menstrual cycle. This usually occurs around the middle of the cycle. The first part of the cycle, from the start of the period to ovulation is called the **follicular phase**. During this phase the egg that will be released that month is selected from a batch of approximately 20 immature eggs.

Each egg is surrounded by a layer of hormone-producing cells and together they constitute what is called a follicle. The **follicle** that is selected grows under the influence of a hormone called **follicle stimulating hormone (FSH).** This hormone is released by a small gland at the base of the brain called the **pituitary gland.**

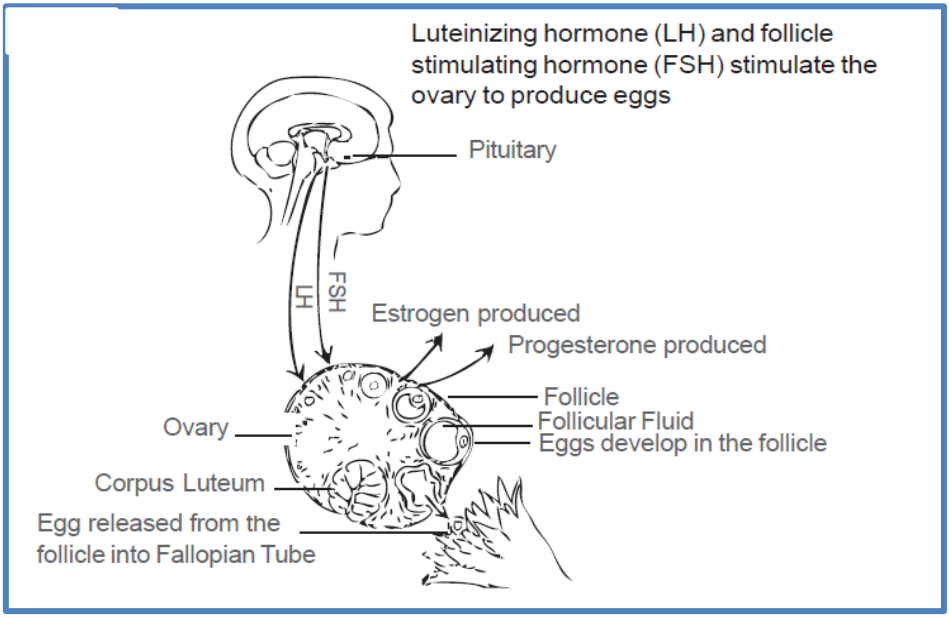
As the follicle grow's, a lake of hormone-rich fluid forms around the egg. This can be visualised by using an ultrasound scan.

Ultrasound produces a picture by using harmless sound waves. On the scan, the follicle appears as a black circle in the grey background of the ovary.

The hormone-producing cells in the follicle produce the sex hormone oestradiol.

When the follicle reaches a certain size and the egg is mature, a second hormone, **luteinizing hormone**, is released from the pituitary gland. This triggers the mechanisms that ultimately, some 36 hours later, lead to **ovulation** - the release of the egg.

This is released into the bloodstream and stimulates the lining of the uterus, known as the **endometrium**, to thicken.



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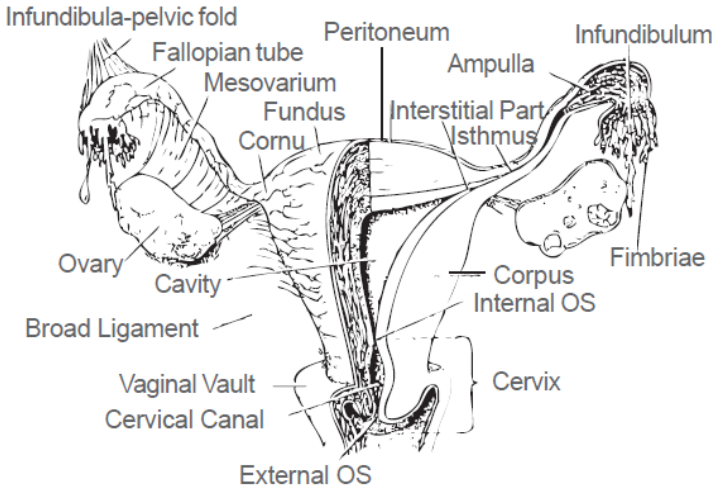
After ovulation a second hormone, **progesterone**, is released from the same hormone-producing cells in the ovary. Together, the oestradiol and progesterone prepare the lining of the uterus for the developing embryo.

The egg is collected by the **fimbriae**, the “fingers” on the end of the fallopian tube and moves into the wider part of the tube known as the **ampulla**. If sexual intercourse has occurred, sperm will swim up through the cervix, through the uterus and along the fallopian tubes to the ampulla.



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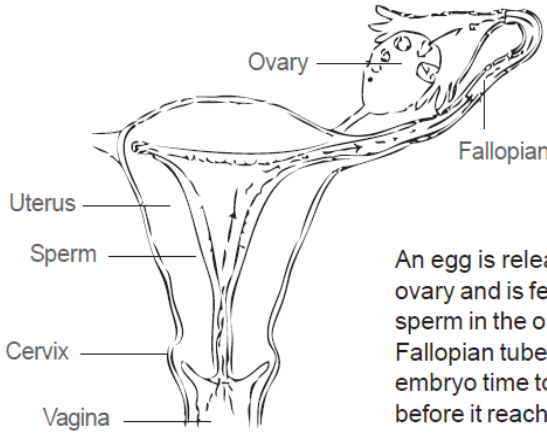
Although many sperm will surround the egg only one will enter through its protective coat - the **zona pellucida** and penetrate the egg. A reaction then takes place in the egg so that no more sperm can enter. The fertilised egg remains in the ampullary part of the fallopian tube for up to 48 to 72 hours before starting the journey to the uterus, arriving in the uterus in about 5 days. The small embryo has now formed into a cluster of cells known as a blastocyst.

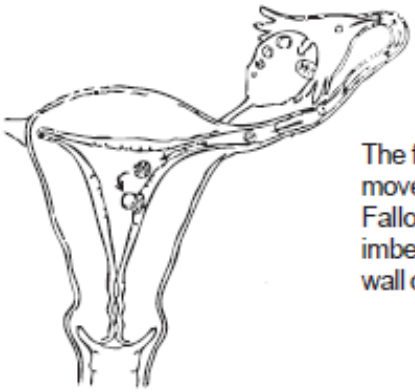
This blastocyst comes to rest against the side of the uterus and starts to implant about day6 to 7 after fertilisation.

As implantation is taking place this small early embryo sends a signal to the ovary, which continues to secrete the sex hormones, progesterone and oestradiol.

These hormones keep the endometrium favourable for the early pregnancy to continue.



An egg is released by the ovary and is fertilized by the sperm in the outer thrid of the Fallopian tube to allow the embryo time to develop before it reaches the urterus



The fertilized egg moves down the Fallopian tube and imbeds itself in the wall of the uterus

If the egg fails to fertilise, the ovary will stop producing the sex hormones and the endometrium will break down and is shed as a period. The whole process then starts up again, as the start of a new cycle.

Assisted Conception

This refers to all methods of preparing eggs or sperm to help infertile couples have a baby. The techniques described in this leaflet are in-vitro fertilisation (IVF), intra cytoplasmic sperm injection (ICSI) and an adaptation of the same procedure - Satellite IVF/ICSI.

In-Vitro Fertilisation

IVF refers to the mixing of sperm and egg in an environment where fertilisation can occur outside the body. Generally, the container used was a small test-tube, hence the phrase “test-tube babies”. Now, a “dish” is used for each stage of fertilisation and incubation of eggs and embryos. The technique was pioneered through the 1970’s by Mr Patrick Steptoe and Professor Robert Edwards, initially in Oldham and then continued in Bourn Hall. The first pregnancy was established in 1976, but it was not until 1978 that the first baby was born - Louise Browne.

The technique was originally developed to treat patients who have blocked or damaged fallopian tubes (where the sperm and egg cannot meet), but as it has become more successful it has been used to treat a much wider spectrum of infertility disorders (including sperm problems, endometriosis, ovarian problems and unexplained infertility).

To achieve a reasonable success rate with IVF more than 1 egg needs to be collected during the treatment cycle. This is achieved by using powerful fertility drugs. The first principle of the treatment is to stop the body's normal control mechanisms for ovulation.

To do this we use a type of medication known as a gonadotrophin releasing hormone agonist (GnRH agonist).

There are different forms of this drug, which can be administered as a nasal spray, by daily subcutaneous injection, or by a subcutaneous injection that lasts for 4 weeks.

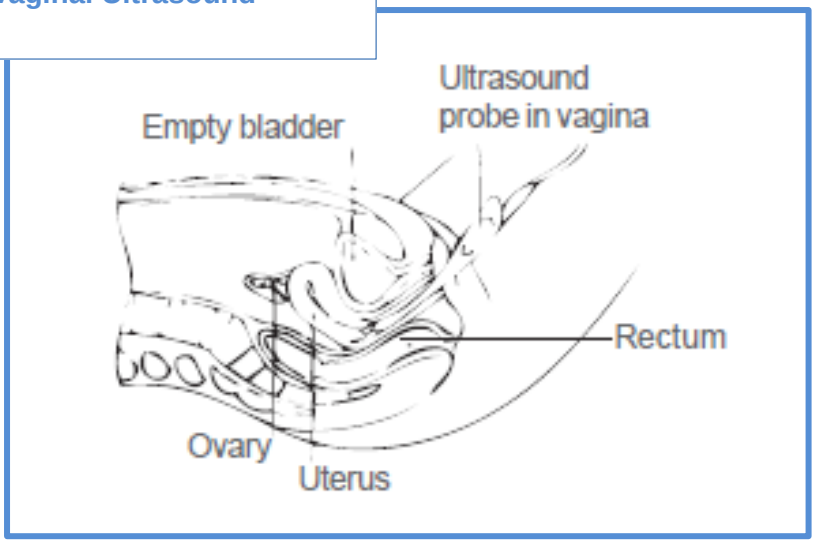
The drug that we most commonly employ in this clinic is **Buserelin** given in the form of a daily injection. This step in the treatment is important as it makes the process a lot simpler, it allows us to plan the cycle more readily, and does appear to substantially increase the success of the treatment.

There are other ways of stopping the body's normal control mechanisms later in the cycle by using a GnRH antagonist.

The commonest drug in use now is a drug called **Cetrotide.**

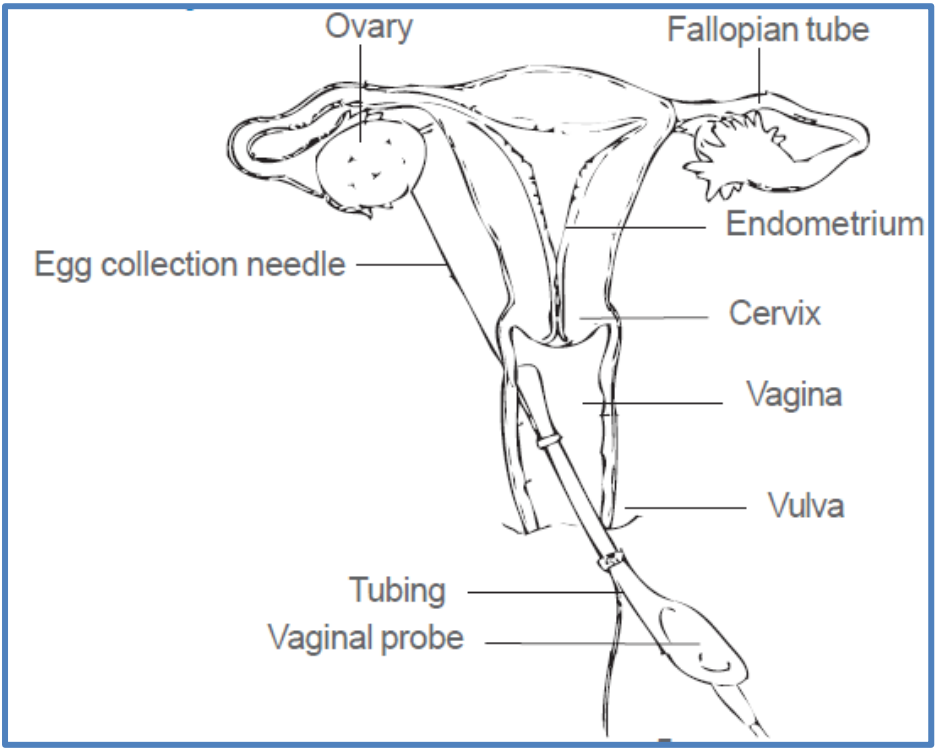
Having stopped the body from producing its own hormones, we can then administer the hormone called **Follicle Stimulating Hormone (FSH)** that is available in a number of preparations. These are usually given as daily subcutaneous injections. There are various brands of this product. We tend to use **Gonal F** or **Menopur.**

Transvaginal Ultrasound



The development of the follicles, containing the eggs, can be monitored indirectly using blood tests and directly by visualising the ovary using a vaginal ultrasound probe.

Ultrasound is more important than the blood tests and so such blood tests may not be performed on everyone.



When the eggs are mature, they are collected using the same vaginal ultrasound probe with an attached needle guide.

A probe is inserted into the vagina and a needle passed through the vaginal wall into the ovary. The eggs together with the fluid from the follicles are withdrawn through the needle gentle suction.

The eggs are placed in culture fluid in dishes. On the morning of the egg collection the male partner produces a sperm sample by masturbation.

The best sperm are then selected using a sperm wash technique and are then added to the dishes containing the eggs. The following morning the eggs are inspected for signs of fertilisation.

If fertilisation has occurred the early embryos are transferred to the uterus 2-3 days after the eggs were collected.

The embryo is transferred through the cervix into the uterus using a small Teflon lined catheter. A sensitive pregnancy test is performed 14 days after the egg collection to confirm a pregnancy.

Despite considerable advances in recent years, IVF remains a complex, and expensive treatment. The chance of a successful treatment cycle depends on several factors.

The most important factors are:

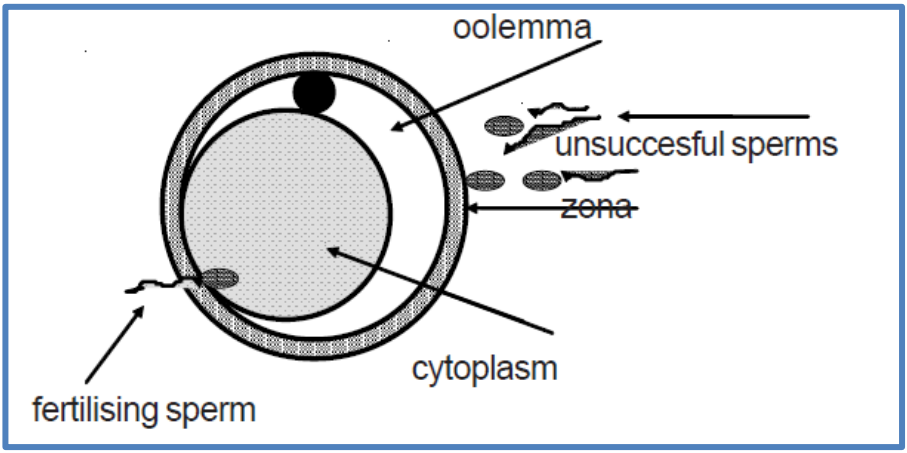
• Your age.
• Whether you have been pregnant before, particularly if you have had an IVF pregnancy.
• The length of time you have been trying for a baby.
• The number of times you have attempted IVF treatment.
• The cause of your fertility problems.

The average chance of a pregnancy in our clinic is illustrated in a separate sheet enclosed with this booklet. The success rates quoted give you the average chance of alive birth per treatment cycle commenced in our clinic. Each treatment cycle is associated with a chance of success and studies have shown that approximately 65% of women under the age of 34 will conceive after completing 5 treatment cycles of IVF.

During routine IVF treatment, approximately 100,000 moving (motile) sperm are placed in a dish with each egg.

Over the next few hours, several of these sperm will bind to the outside shell (zona) of the egg. Some of these will begin to make their way through the eggshell using a combination of movement and digestive chemicals.

As soon as one sperm has penetrated the eggshell completely, another chemical change occurs in the egg to prevent any more sperm from getting through. The successful sperm must then push its way through the membrane (the oolemma) that surrounds the interior of the egg (the cytoplasm). When a sperm has achieved this, and its genetic material is released into the cytoplasm, fertilisation is said to have taken place.



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Approximately 20% - 30% of all infertile couples have male subfertility and may be told that their sperm is of too poor quality to attempt routine IVF.

A minority of couples may experience a failure of fertilisation during a standard IVF treatment cycle. This may be for one of several reasons:

• The sperm count is very low - this means that there are not enough sperm to mix with the eggs.

• The sperm motility is very low - routine IVF relies on the presence of motile sperm to push their way through the egg's shell and oolemma membrane. Non-motile sperm are unable to do this and thus failed fertilisation results.

• Some men have sperm, which is coated in small particles termed anti-sperm antibodies.

These occasionally prevent fertilisation from occurring due to either stopping the sperm head from binding to the egg, or by "weighing down" the sperm tails so they cannot swim to the egg or push through the eggshell.

• Sometimes there are no obvious problems with the sperm, yet they fail to fertilise any eggs. This may be due to an abnormality of the egg's shell, which prevents sperm from sticking to it.

Unfortunately, we have no way of predicting this before an IVF attempt, and so it is only discovered when no fertilisation takes place during treatment.

There is an option for couples who experience these difficulties - assisted fertilisation by microinjection. This is known as: **Intra Cytoplasmic Sperm Injection**, or **ICSI** for short.

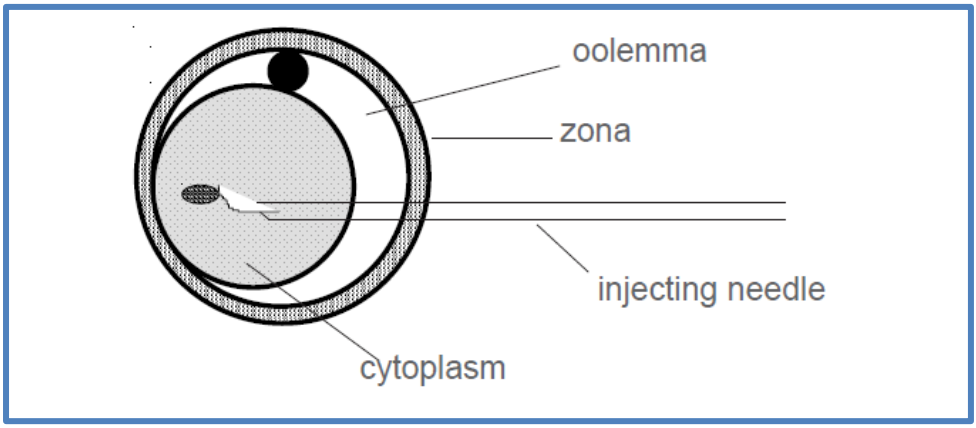
Common Causes of Male Infertility:

- Genitourinary infections, e.g. Chlamydia, mycoplasma and several other related infections.
- Undescended testicles. Iatrogenic (brought about by medical or surgical treatment), e.g. after vasectomy and reversal of vasectomy.
- Genetic or hereditary causes.
- Diseases requiring removal of the testis/testes, e.g. tumours. Diseases requiring chemotherapy or radiotherapy.

ICSI – Intracytoplasmic Sperm Injection

This technique was developed in Belgium and is the biggest advance in fertility treatment since IVF. It was introduced in 1992 and the following year the first UK baby from ICSI treatment was born. Thousands of babies have been born in the UK as a result of this revolutionary treatment for male infertility.

ICSI involves drawing up a single sperm into a very fine glass needle and injecting it through the zona (shell) directly into the cytoplasm or centre of the egg. The sperm should then release its genetic material into



the cytoplasm to fertilise the egg. As the sperm is placed right inside the egg, it does not need to be very motile. Therefore, this method is suitable for patients with poor motility. It also overcomes the problem of low sperm numbers, as only one normal motile sperm is needed for each egg.

Approximately 75% of the fertilised eggs then develop into embryos suitable for transfer or freezing. In most cases, one embryo is available for replacement (maximum of three in some cases for women over 40) and pregnancy rates are comparable to the rate for conventional IVF. The European Society of Human Reproduction (ESHRE) has completed data from more than 10,000 ICSI cycles performed in 1994.

The overall clinical pregnancy rates with ICSI are approximately 20.7% per cycle for ejaculated sperm, 22.4% for epididymal sperm and 22.2% per cycle for testicular sperm (see page11-12). The main determining factor for the outcome is the presence or absence of sub-fertility factors in the female partner and her age. You may also wish to visit the HFEA website at **www.hfea.org.uk.**

ICSI – Local Clinical Pregnancy Rates

We introduced ICSI as a clinical service in 1996, as part of our commitment to providing a comprehensive and up to date range of assisted conception techniques. We analyse our results on an annual basis and are pleased to report that our results are favourable when compared to the published ESHRE figures and are as good as most successful centres in the world. A copy of our results is always available in the red folder in the waiting room area as well as being accessed through our website

www.yorkshirefertility.co.uk

ICSI – Safety and the future

It is very important to remember that ICSI is a relatively new and in many senses an

experimental technique with a great deal still to learn about its limitations and effects. The technique involves piercing the egg with a fine glass needle to place a sperm in the middle of the cytoplasm. Little is known about the effects this disruption may have on the egg.

Embryos resulting from the technique appear to have normal developmental potential in culture and pregnancies after ICSI have no more chance of proceeding normally than for conventional IVF.

Careful genetic analysis of the pregnancies and follow up after delivery continues to be carried out by many groups across the world. However, the data available is still limited and we cannot be fully certain that there are no undue risks involved. It is important that you are aware of and accept the potential risks before agreeing to undergo any treatment.

ICSI - RISKS

The risks described in this section reflect the current state of our knowledge and the guidance provided by the Human Fertilisation and Embryology Authority. We regularly update this section, as and when new information becomes available.

Please read carefully and ask for clarification as and whenever necessary. We will be pleased to discuss this and any other issues with you in detail. Also note that this section deals with current risks known to date and the contents of these sections will be subject to change and variation as more information becomes available.

ICSI is an invasive technique and may also use sperm that would not otherwise be able to fertilise an egg. For these reasons, concerns about the potential risk to children born as a result of ICSI have been raised and several follow-up studies have been published.

ICSI is still a relatively new technique and all children conceived using ICSI are still quite young. Consequently, these follow up studies involve relatively small numbers of children and do not include effects that may be seen in older children or in the next generation.

The HFEA considers follow up studies to be extremely important and would encourage patients to talk to their treatment centre about participation in such studies. Clearly, more studies are needed, but the use of ICSI has been potentially linked with certain genetic and developmental defects as explained below:

1. Possible inheritance of genetic chromosomal abnormalities

a) Increased incidence of Cystic Fibrosis (CF) mutation status in azoospermic men

Some men who have no sperm in their semen (approximately 5% -10% of men with azoospermia) are found to have congenital Absence of Vas Deferens (CBAVD). In this condition, the tubes that carry sperm from the testes to the penis are missing. Two thirds of men with CBAVD are also carriers of certain cystic fibrosis mutations.

Men with CBAVD and their partners may therefore wish to undergo genetic testing before proceeding with ICSI. This is not compulsory as long as you are aware and understand the risks of not taking this genetic test. It has also been recommended that all azoospermic men should be offered genetic testing.

Genetic counselling is strongly recommended for all

azoospermic men with CBAVD along with their partners. This will help to have both an improved understanding of the condition and also to become aware of the implications of genetic counselling.

b) Male fertility relating to Y chromosome (sex chromosome) defects

A small proportion of sub-fertile men have parts of the Y chromosome missing (deleted).

Certain genes on the Y chromosome have been shown to be involved with the production of sperm and deletions (deficiencies) on these genes may be responsible for some men having few or no sperm in their semen. Consequently, using sperm with such deletions to create an embryo may result in the same type of sub-fertility being passed from father to son. It is recommended that sub-fertile men and their partners contemplating ICSI treatment should be aware of this possibility.

c) Sex chromosomal anomalies

Abnormal numbers of structures of chromosomes, particularly the sex chromosomes (X and Y), may be associated with infertility in both men and women. Babies born from ICSI treatment may have a slightly increased risk of inheriting these abnormalities. Studies have found that up to 3.3% of fathers of ICSI babies have abnormal chromosomes. It is estimated that up to 2.4% of the wider population have a chromosomal abnormality.

Therefore, where ICSI is used in the treatment of men with severe azoospermia or oligospermia (low sperm numbers) there is an increased risk of sex chromosome disorders. Sex chromosome abnormalities such as 47XXX, 47XXY and 47XYY occur at a relatively high frequency in the neonatal population – about 1 in 700 births for each of the abnormalities.

d) Novel chromosomal anomalies

The complexity of the process of egg and sperm production means that even if an individual possesses a normal number of chromosomes, their gametes could potentially have an abnormal number.

It is not possible to detect beforehand which eggs or sperm have chromosomal abnormalities and gametes that might not have been able to participate in natural fertilisation could therefore be used in ICSI.

Babies born after ICSI have been reported to have new chromosomal abnormalities in 3% of cases. The rate in the general population is around 0.6%2.

2. Possible Development and Birth Defects.

a) Birth defects

There is not yet any clear evidence whether ICSI results in higher rates of birth defects.

The number of babies reported to have major birth defects, such as cleft palate, is between 1% -5% in both the general population and in babies born following ICSI. Studies suggest that minor abnormalities occur in up to 20% of ICSI babies compared to up to 15% of the general population. More studies are needed to gain further insight into these possible effects.

b) Developmental Delays

One recent study that followed a relatively small number of children has given an indication of possible delays in mental development at one year in some children born following ICSI.

Other studies have not shown this link and further research is needed in this area. However, the first results of an ongoing study led by a London paediatrician, Dr Alistair Sutcliffe, published in July 2003 were encouraging. The study compared 541 children

conceived by ICSI and 440 by IVF with 542 who were conceived naturally. It showed that at the age of 5, the ICSI and IVF children were doing just as well as the ones conceived naturally.

3. Possible Risk During Pregnancy

a) Miscarriage

With ICSI, it is possible that abnormal gametes, which would not normally be able to produce a viable embryo, could be used thereby increasing the chance of an abnormal embryo being formed.

Many abnormal embryos will not implant into the womb and do not grow, but in some cases, implantation may take place leading to a possible higher risk of miscarriage. It has been reported that the risk of miscarriage increases in proportion to the severity of male infertility.

Percutaneous Epididymal Sperm Aspiration - PESA

Occasionally, there will be no sperm present in the seminal fluid at the time of ejaculation.

This could mean that sperm are not being produced by the testes or it could be related to damage or absence of the vas deferens, the tube that transports the sperm from the testes to the penis. It could also be due to the blockage in the fine lattice work of tubes that form the storage vessel for sperm at the top of the testes, known as the epididymis.

Sperm can be removed directly from the epididymis by a procedure known as **Percutaneous Epididymal Sperm Aspiration (PESA).** This procedure is carried out under either local or general anaesthesia usually by a urologist.

The commonest reasons for having to perform this procedure are:

• Following vasectomy.

• Following failed reversal of vasectomy

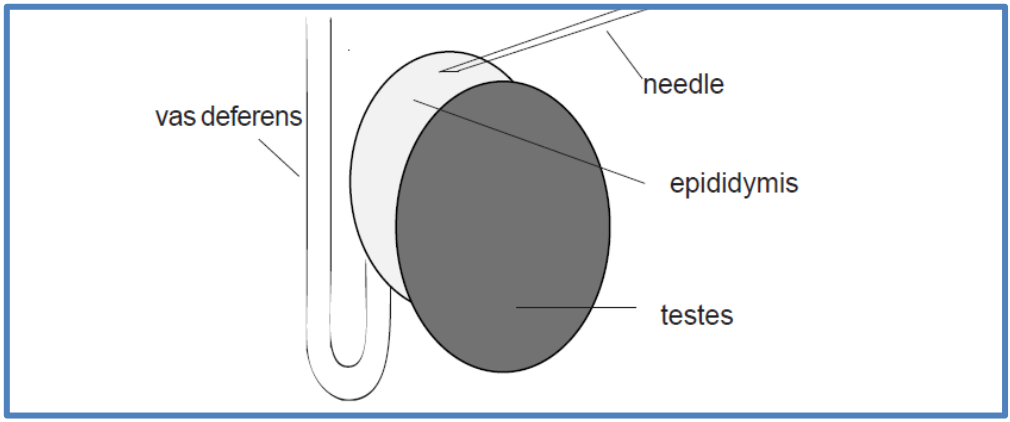
• Congenital absence of the vas deferens

After anaesthetising the testes (or having a general anaesthetic), a small needle is placed into the epididymis to remove the sperm. We would expect to extract sperm with this system approximately 75% of the time.

Percutaneous Epididymal Sperm Aspiration (PESA)

Recovery from the PESA procedure is fairly quick. We would advise you to have some

simple anti-inflammatory “pain killers” at home (e.g. Ibuprofen) and to use a scrotal support for 24 hours.



Micro-epididymal Sperm Aspiration

Sometimes, the **PESA** is unsuccessful, and we would have to carry out an operation called **Micro-Epididymal Sperm Aspiration (MESA).**

This procedure is carried out under a general anaesthetic usually by a urologist. An incision is made in the scrotum and a fine needle is inserted into the epididymis. The urologist extracts the sperm from the epididymis using a small syringe. An embryologist checks to see if sperm are present.

The sperm are taken back to the IVF laboratory and cryo-preserved for future use using ICSI. The PESA or MESA will be scheduled for a time prior to the proposed ICSI treatment.

Testicular Sperm Extraction

Occasionally there will be no sperm present in the epididymal aspiration, or the doctors

may feel that it is best to extract sperm from your testicles. In such circumstances a urologist will take several small biopsies (tissue samples) from the testes to see if sperm are actually being produced. The embryologist will then attempt to extract the sperm from the biopsy specimens. If sufficient sperm are found, these can be used for ICSI.

This procedure is called Testicular Sperm Extraction (TeSE) and is performed under general anaesthesia. There are no guarantees of sperm being found using this procedure, and the quality of such sperm may be variable.

The likelihood of retrieving sperm depends on the circumstances of your inability to ejaculate sperm in the first place, and on clinical examination features.

If sperm are not found in the biopsy, it may mean that the testes have stopped producing

sperm altogether. In this situation the only options for having a family would be either adoption or using donor sperm.

Sperm obtained from **PESA, MESA, TESA or TeSE** can only be used in a cycle of IVF incorporating ICSI.

Satellite IVF works on a symbiotic relationship between Yorkshire Fertility and a Central Unit (Leeds Fertility. CARE Fertility or Manchester Fertility.

All the counselling, monitoring, and most of the treatment will occur at Yorkshire Fertility by a team of doctors and nurses based in Halifax. The only part of the treatment that occurs in The Central Unit will be the egg retrieval and embryo transfer.

There are major advantages to you of having a local unit for treatment. You will find that the proximity of treatment will enable you to continue with your life while undergoing IVF. You will not have the added financial expense of travelling costs to and from the Central Unit.

You will find that support from the IVF team in Halifax will be easily accessible.

A team of clinicians, fertility nurse specialists and counsellors are readily at hand to answer any queries that you may have about the procedure.

Advice and support during IVF treatment should be directed to:

Yorkshire Fertility:
Telephone 01422-261344
Monday to Friday 8am to 4pm.

For URGENT problems between 4pm and midnight and 8am and midnight at weekends or bank holidays you are able to contact

Calderdale Royal Hospital switchboard:
Telephone 01422-357171
And ask for the on-call person for IVF.

This out of hours service is for emergencies only as the staff will not have your medical records available.

Treatment Cycle Details

Female Partner

You will be advised of the month that your treatment can commence when your appointment is booked. You will receive written confirmation of this appointment.

We hold patient information evenings regularly throughout the year.

We recommend you attend one of these prior to you starting your treatment. Please contact the clinic or look on our website for dates of these forthcoming evenings

It is important that you inform the Unit of any change of address, telephone number/sor GP.

The month before treatment is due you will be contacted by the team to arrange your paperwork consultation. This appointment will be when one of our team explains in detail about your forthcoming treatment. This appointment can take up to 1hour and 30 minutes.

Apart from the initial consultation appointment, in general, appointments are usually between 8.00 a.m. and 10.30 a.m. for IVF/ICSI. We try to be accommodating, especially if you work or have long distances to travel, but this is not always possible.

As we are a small team of doctors and nurse specialists we cannot guarantee that the same person will carry out all of your scans, although we do endeavour to try. If you would like to be seen by the same person, please ask if they are available.

The First Visit

Yorkshire Fertility is situated on the 1st floor of Broad Street Plaza, 51 Northbridge, Halifax. At the first visit, it is essential that you and your partner (if you are being treated as a couple) attend as we need to complete all the relevant consent forms. This appointment will be late morning or early afternoon. A transvaginal

Ultrasound examination will be performed at this visit if you have not had a scan within the last 3months.

Prior to IVF treatment you will be asked to have a blood sample taken for HIV and Hepatitis B and C, syphilis and Hepatitis B core antibody. This is a routine screening blood sample that we ask all our patients to have taken prior to commencing their first treatment cycle and may need to be repeated during that cycle and for each subsequent cycle.

By ensuring that we are aware of the HIV and Hepatitis and syphilis status of all our patients and their partners, we are able to provide a safe environment for your treatment and your frozen embryos and sperm. The blood test will be performed after you attend Yorkshire Fertility on your first visit. The nurse who arranges the test will discuss the implications of having this blood test and the reasons that this test is important.

All results will be given to you verbally and in strictest confidence at your next

appointment. If you do not wish to have the screening, treatment will be withheld.

There are a number of different stimulation protocols that we can use to maximise your chances of success. So what happens next depends on the protocol that you have been recommended.

When you sign your consents for treatment the nurse will discuss with you the posthumous use of your eggs, sperm and embryos. This means what you would like to happen to anything you have frozen in the event of your death. You may feel it beneficial to discuss this with a counsellor if you are uncertain as to your wishes. Please speak to a nurse to arrange this. If you agree to the posthumous use you will have to see a counsellor before you will be able to use any frozen eggs, sperm or embryos.

The Second Visit – Long Protocol

You will need to telephone the unit within the first few days of your period for an appointment for approximately day 21 of your cycle (depending on the length of your cycle). On this visit you will have a vaginal ultrasound scan to confirm ovulation has taken place.

It is advisable that you use a barrier form of contraception from the first day of your period starting until you have a further period.

This is particularly important for women whose fallopian tubes are normal, as they could theoretically conceive. Although there is no evidence that the Buserelin we use in the early part of your treatment can harm a pregnancy, we feel it is important to avoid any potential risks.

You will be given your prescription and then asked to go to pharmacy to collect your medication.

You will then be instructed on the use of the medication, by a nurse and shown how to give your first injection. This will necessitate you giving a subcutaneous injection daily until the day before your egg collection. It is more convenient during your treatment if you can administer the injections yourself, but we are more than happy to show your partner how to inject you. The appropriate equipment will be provided.

We expect you to have a period about 10-14 days after starting the injections.

It is important that you do not run out of the Buserelin solution, and you will be given an adequate supply to cover you for approximately 30 days.

The Third Visit – Long Protocol

Your 3rd visit will usually be on a Wednesday / Thursday some 14-20 days after you start the Buserelin injections. At this visit you will have a scan and on occasions a blood test to

check your hormone levels. The scan, as all other scans, will be performed through the vagina. You will need an empty bladder for this procedure. If the scan or blood test demonstrates that you are not quite ready to start the second phase of treatment, we will ask you to continue the injections and return the following week.

If you are ready to move on to the next phase of treatment you will be given instructions how to give the next injection and so it is important that you bring the other boxes of injections with you to that appointment. Injections are usually started on a Friday or Saturday.

The starting dose of the injection will depend on a number of factors including your age, the investigations that you had performed before your treatment and your response to these medications if you have had previous treatments.

Remember to keep taking the Buserelin injections whilst you are on the second injections of FSH, i.e. you will be giving 2 injections a day.

The Fourth Visit (Halifax) Long Protocol

Your next visit will be on Day 8 of your injections, although some patients may be asked to see us earlier on day 5/6.

You will be having a trans-vaginal ultrasound scan. At this scan, we will have an idea of how many follicles and eggs are developing. Any adjustment to your dosage will be decided by the medical staff and instructions given, depending on your response.

The Fifth Visit Long Protocol

Depending on your scan result, you will be asked to attend for further scans and /or blood tests on an alternate or daily basis i.e. Day 10, 12 etc. until the eggs are deemed to be mature. You will have to continue with the daily injection of FSH and the buserelin injection until advised otherwise. The majority of women will be ready for egg

collection after 12-14 days of injections. Further instructions will be given verbally and in writing regarding the egg collection details.

The Second Visit –Short Protocol

You will need to telephone the unit on the first or second day of your period for an appointment that day or the day after.

On this visit you will have a trans-vaginal ultrasound scan. It is advisable that you use a barrier form of contraception throughout your treatment cycle. This is particularly important for women whose fallopian tubes are normal, as they could theoretically conceive. Although there is no evidence that the medication used can harm a pregnancy, we feel it is important to avoid any potential risks.

Please remember to bring your drugs with you as instructed above, you will be instructed on the use of the drugs by the nurse and how to give your first injections. This will necessitate you giving a subcutaneous injection daily until the day before your egg collection.

You will be given an appointment for the fifth day after commencing the FSH (Gonal F / Menopur) injections. Depending on the amount and size of the follicles you may need to start the Cetrotide injections (ie. 2 injections a day). Any adjustment to your dosage will be decided by the medical staff and instructions given.

You may need to attend for further scans daily or alternate days until the follicles reach a mature size ready for egg collection. Further instructions will be given verbally and in writing regarding the egg collection details.

Cancelled Cycles

A small number of cycles are cancelled before egg collection.

The two main reasons are:

1. Overstimulation: In this situation your ovaries will have produced too many follicles (greater than 30). Under these circumstances you have an increased risk of developing ovarian hyper-stimulation syndrome (OHSS). This is a potential life threatening condition that is outlined in detail later in this booklet.

We can generally avoid severe OHSS by either not proceeding to an egg collection, or alternatively carrying out the egg collection, fertilising the eggs in the normal way and then freezing all the fertilised eggs, thus avoiding the embryo transfer. This is because the risk of developing severe OHSS is increased dramatically if you become pregnant after an embryo transfer in circumstances where a large number of eggs had been collected.

2. Poor response: If your ovaries fail to respond adequately by either producing no follicles or fewer than 3 (the number being variable depending on your infertility history) your chances of success are decreased. We may therefore advise you to stop the drugs and try again on a higher dose.

Sometimes we may advise you to start on a different type of cycle – a “short” cycle. This is where the FSH injections are commenced 2 or 3 days after your period starts and a second injection of cetrotide once recruitment of embryos is established. We will discuss this in more detail with you if you require this treatment in view of poor response.

Human Chorionic Gonadotrophin (Ovitrelle) injection

When the clinic have assessed that sufficient eggs have developed to maturity you will need to have an injection of human chorionic gonadotrophin (Ovitrelle) to prime your

eggs before egg collection and this is given in a single dose. The injection is always given at night, usually between 9.00 pm and 2.00 am. The reason the injection is given at night is to allow us to plan the egg collection some 36 hours later.

The injection may be self-administered or given by your partner. You will be given a specific time to have this injection, by way of a telephone call from the Central Unit.

It is important that you have your injection at the time stated. Following this injection, you will be advised when to stop the buserelin injections and your regular daily injections of FSH.

If you do not have the Ovitrelle injection, we will not be able to recover your eggs from the follicles.

The Egg Collection Visit (Central Unit)

You will have your egg collection 34 to 36 hours following the Ovitrelle injection. On this day you will be asked to report to the Central Unit allocated to you. You will told the time to report having had nothing to eat for 6 hours prior to this time and only clear fluids up to 2 hours prior to the egg collection. You will have been given these instructions two days earlier. It is important to read through those instructions carefully.

When you attend for your egg collection please bring a loose T-shirt or a nightdress and also something to read.

The egg collection is usually performed using a needle guided by the vaginal ultrasound probe using a local anaesthetic and intravenous sedative to keep you comfortable. Rarely does it require a general anaesthetic. The main reason for general anaesthesia is if the

ovaries are inaccessible through the vagina. This will have been assessed on your previous visits.

Not all follicles seen on the ultrasound scan will release an egg, although an egg will be found in around 90%.

You may be given an intravenous injection of antibiotic at the start of your egg collection.

Please advise the doctors if you are allergic to any antibiotics.

On average, 8 to 10 eggs are collected. Whilst you are sedated, your partner will be escorted to a room where he will be required to produce his sperm sample.

Following this, after you have recovered from the egg collection procedure (approximately 2 to 4 hours later), you will be able to go home. You will be incapable of going home on your own and you therefore need to ensure that someone is able to escort you home.

Male Partner

At the start of the treatment, your swim-up test is reviewed. This may have to be repeated if necessary.

On the day of the egg collection, you will need to attend the Central Unit with your partner to offer her support and to produce your sample. You will be given a specific time to attend and it is essential that you attend at that time. The best sperm sample is provided after a period of abstinence from sex of between 2 to 5 days. This sample must be produced by masturbation only.

On arrival at the Central Unit, you will be escorted to a room to produce your sperm sample, or asked to produce it after the egg collection is completed.

Your partner will require some assistance to make her way home following the egg retrieval. It is therefore important that arrangements will have been made in advance for this if you were not planning to stay with her.

(It is important that you forewarn us if you have difficulties in producing a sperm sample so as we can arrange for your sample to be collected and stored prior to the egg collection.)

You should attend The Central Unit with your partner on the day of embryo transfer, to offer support and participate in the discussions that will take place on the day.

It will probably be worth your while to drive to Leeds/Manchester/Sheffield beforehand to make sure you know the way to your chosen central unit.

Your support during the whole treatment cycle cannot be overemphasised. We endeavour to involve you as much as possible in your and your partner's treatment.

The Embryo Transfer Visit (Central Unit)

You will be asked to attend the appropriate Unit two to three days after the egg collection to have your embryo transfer. They will discuss the number of eggs that have fertilised, and also the appearance of the resulting embryos.

You will have an embryo transfer the same day. Not all the eggs that are collected are of the same quality and it is usual for some not to fertilise. The average fertilisation rate is around 60% of eggs collected.

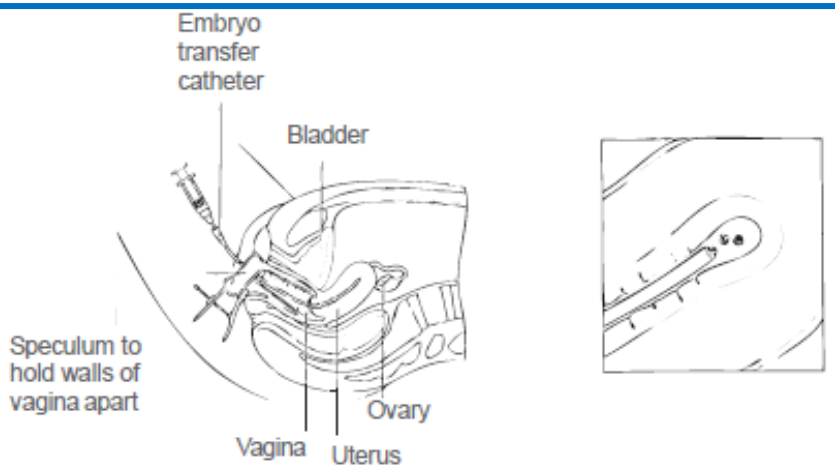
The Central Unit will always ring you the day after your egg collection to tell you how many eggs have fertilised and to discuss the day of embryo transfer. As mentioned previously it may be advisable to consider extended culture of the embryos with a view of replacing at blastocyst state and / or to consider freezing the remainder. This may incur an extra charge and you will be billed direct to your home, or at

the Central Unit prior to your departure.

Embryo transfer is a simple procedure for which you do not require any anaesthetic. It is essential for you to attend the hospital for your embryo transfer with a comfortably full bladder. This usually makes the transfer a little easier as the uterus is pushed into a better position.

2 days after the egg collection you will need to commence progesterone pessaries (Cyclogest) as instructed when arranging the egg collection.

If you have some abdominal discomfort after the procedure it is safe to take paracetamol at regular intervals according to the recommendations on the packet.



How many embryos should be replaced?

After advising you on the number of embryos that have formed, and on their quality, the laboratory staff will discuss the number of embryos they feel should be replaced, it is usually 1 or 2 embryos that are replaced as recommended by the HFEA, 3 embryos only for women of 40 years and over. We feel it is essential that both partners attend for this very important discussion. In the case of blastocyst transfers the number of embryos transferred will be discussed with the medical team at the central unit.

Common Concerns

Isn't the aim to get everyone to have one embryo transferred?

SET is not right for everyone and the decision should always be taken on an individual basis. Every clinic has a strategy in place to reduce the risk of a multiple pregnancy. A number of relevant factors may be considered such as your age and the quality of your embryos.

I've heard SET is really just about saving money on NHS care for premature babies?

It is not about saving money. It is about saving lives. Babies are only in specialist neonatal intensive care units because they have serious complications. Half of all twins are born prematurely and are of low birth weight, which means they are more likely to need specialist medical help. SET is about increasing the numbers of healthy IVF babies.

Why are IVF patients being penalised by having to have single embryo transfer?

In the past IVF patients have sometimes had to take unnecessary risks just because they had problems getting pregnant. If you are offered SET you are not being penalised – you

are being given the chance to avoid the major risk associated with IVF; a multiple pregnancy.

I'm fit and healthy, and therefore willing to take the risk of having twins

Being fit and healthy does not mean that you will avoid complications with a multiple pregnancy, most of which are related to prematurity. No one wants to risk damage to their own child if it can be avoided.

I know lots of twins who are fine and I think the risks are being exaggerated

Many twins are fine, but it is not always appreciated that many others are not. Naturally there is only a 1-2% chance of having a twin pregnancy, but after IVF this rises to 25%. This means that the risks of problem pregnancies, miscarriage, and disability and of death are unacceptably high too. It is quite possible to reduce multiple birth rates while giving a similar chance of success if patients are selected carefully.

I can't afford to pay for lots of treatment. Surely if I have two embryos put back I will double my chances of getting pregnant?

Putting two embryos back does not double the chance of getting pregnant, but it does increase the risk of a multiple pregnancy. If clinics choose patients carefully, success rates can be maintained by carrying out SET and freezing any remaining embryos to transfer later.

It is my right to choose how many embryos to put back. You can't decide that on my behalf

As medical professionals we are responsible for your health and that of any future baby.

We cannot risk causing unnecessary damage to your child or to you by putting back two embryos if you have a high chance of having a multiple pregnancy.

More detailed information about the risks to mothers and babies

of a multiple pregnancy can be found at: www.multiplebirths.org.uk and www.oneatatime.org.uk.

This fact sheet is produced by **Fertility Network UK**, in conjunction with One at a Time and the **Multiple Births Foundation**. The Department of Health has provided funding for this project.

Embryo Freezing

If there are a sufficient number of fertilised eggs it is sometimes possible to freeze (cryopreserve) the spare embryos for future use.

There are three stages at which the embryos could be frozen:

• At 16 hours of age before the fertilised egg has actually divided (pronucleate stage).

• When the embryos actually divide into between 2 to 4 cells (early cleavage stage).

• As blastocysts (5days).

The embryology staff and medical staff at the central unit will advise you regarding the freezing of spare embryos and the selection process.

Please be aware that if you freeze embryos from a self-funded cycle and there are 2 or more frozen, you will be required to use these embryos before you can proceed with an NHS cycle (if eligible).

At present approximately 31% of women have sufficient embryos to allow freezing. The whole process will be discussed with you in more detail at the start of your treatment.

If your initial fresh embryo transfer is unsuccessful the frozen embryos can be transferred in an artificial cycle at least 1-2 months after completion of your IVF treatment.

There is a separate information leaflet that covers frozen embryo transfer in more detail.

The Pregnancy Test Visit (Halifax)

A blood test will be performed 14 days after the egg collection. This will give us an indication of whether you are pregnant. It is important for you to attend even if you are having vaginal bleeding. The blood tests are tested daily. You will be contacted on the day to obtain the result.

If the pregnancy test is negative, you will be given a clinic appointment to discuss your past and future treatments and whether you wish to use your frozen embryos if available.

Sometimes the test may give a low reading (biochemical pregnancy). This suggests that you are/were pregnant but it is unlikely that you will have a successful outcome out of this treatment. In such we will repeat the test and follow you up until we are clearer about the outcome.

The Ultrasound Scan Visits (Halifax)

If the pregnancy test is positive, an ultrasound scan will be performed 14 days after your first pregnancy test (28 days after your egg collection). This scan will confirm the viability of the pregnancy. At this stage we check to see how many sacs are present in your uterus. We expect to see a heartbeat/s at this stage as well. If we do not see this at your first scan you will be advised to return a week later for a repeat scan.

If all is well, you will be scanned when you are 9 weeks pregnant, and you will be discharged to the care of your G.P. and midwife who will organise your ante-natal care.

Please be aware that the scans we perform are not part of your ante-natal care. You will be given a report of the scans and other relevant information.

Should you experience any problems between discharge and the meeting with your midwife you can contact the Early Pregnancy Assessment Unit on 01422 224415 (Ward 4C) for advice and a scan if necessary.

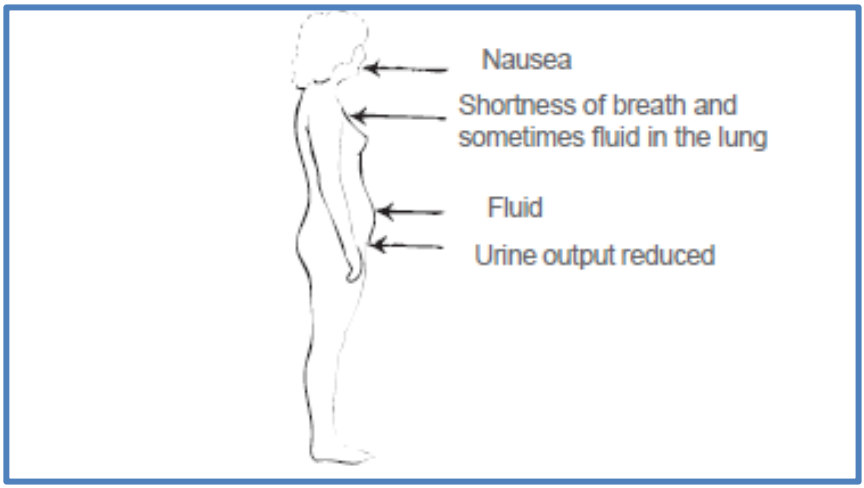
Side Effects and Complications

There are two main complications that can occur with IVF treatment. These both arise because of the need to use fertility drugs to produce a group of mature eggs, and the need to replace more than one embryo to give you a better chance of a pregnancy.

1. Ovarian Hyperstimulation Syndrome (OHSS):

This is where the ovaries over respond to the hormone injections used to stimulate the growth of the follicles that contain the eggs. Rather than the usual number of 8 to 10 eggs, many eggs may start to mature. This can result in the ovaries enlarging with some resulting abdominal discomfort. The very high concentrations of hormones made by these developing follicles can make you feel nauseated. Very rarely, fluid can accumulate in the abdomen and cause abdominal distension (bloating). Sometimes fluid can form around the lungs and heart as well. This can result in blood thickening making the kidneys less efficient and increasing the risks of a blood clot which can be an extremely serious complication.

Thankfully, it is very rare for this condition to become so severe. Approximately 1 in 100 to 1 in 200 patients will need a short stay in hospital because of hyper-stimulation. In most cases the symptoms settle over a few days and if managed carefully should not cause any long-term problems. We take precautions to ensure that the risk of hyper stimulation is small. Around 1 in 1000 patients to develop severe hyper stimulation as described above.



Most patients who develop ovarian hyper stimulation produce a lot of eggs, and usually if we feel you are at risk, a member of staff will advise you to look out for the warning symptoms after the egg collection, namely bloatedness, nausea, vomiting, diarrhoea, breathlessness and general malaise.

If any of these symptoms occur, you should contact the clinic immediately on01422-261344 (working hours are Monday - Friday). Monday to Friday from 4pm to midnight or on weekends and bank holidays, please contact the Calderdale Royal Hospital on 01422-357171 and ask for the on-call IVF member of staff.

We do try to reduce the risk of OHSS to a minimum by selecting the most appropriate dose of medication to stimulate the ovaries. We monitor you very closely during the course of the treatment and if we think that you are at risk of over-responding, we will advise that your treatment cycle should either be cancelled before egg collection or that we go ahead with the egg collection, but freeze all embryos that are formed avoiding an

embryo transfer. This is because if you conceive under these circumstances the hyperstimulation syndrome is much more severe.

2. Multiple pregnancy:

If we transfer more than one embryo into the uterus there may be a chance that you may have more than one baby developing. There are potentially serious implications of having either twin or triplet pregnancies. Multiple pregnancy leads to a greater risk of miscarriage, premature delivery (with the possible death or handicap of one or all babies) and the necessity for the babies to spend some time on the Special Care Baby Unit.

A multiple pregnancy also increases your chances of problems such as high blood pressure in pregnancy, or other medical conditions in pregnancy.

All triplet pregnancies are delivered by Caesarean section. You may well need some assistance at home to cope with three new born babies.

We follow certain guidelines regarding the transfer of embryos. We always prefer to transfer 1 embryo.

3. Risk of ovarian cancer:

Recently there have been reports in the medical journals and national newspapers of an association between fertility drugs and a future increased risk of ovarian cancer. The evidence for this is still inconclusive. The normal risk of a woman developing ovarian cancer in her lifetime is 1%. There is a suggestion that the use of fertility drugs may increase this risk to 4%.

4. Other problems:

Minor complications may occur but these are usually self-limiting.

Some women develop headaches with use of the Buserelin injections. This can be simply treated with paracetamol. Some women also complain of night-sweats and feeling “stuffy” (like a head-cold). Most of these symptoms usually disappear once you have started on the

second daily injections. The daily injections are usually administered subcutaneously with a self-injector. To minimise discomfort you should avoid injecting the same site on consecutive days. During the stimulation phase of your treatment you may experience some lower abdominal discomfort and bloating.

If any symptoms, however, concern you, please do not hesitate to report them to Yorkshire Fertility straight away.

Pre-conception Care Advice

1. Smoking: There is good evidence that suggests smoking is harmful both to male and female fertility. Put into real terms, if a woman smokes 20 cigarettes per day she reduces her natural fertility by over 20%. Smoking is also harmful to the developing foetus both in the short term during the course of the pregnancy, also recent evidence would suggest in the long-term as well, with an increased risk of heart attacks and strokes in mid-life.

There is also evidence that a smoker in the family can increase the risk of cot death.

Therefore it is advisable to stop smoking prior to starting your IVF treatment.

2. Alcohol: Alcohol in excess can again cause problems with both male and female fertility.

A high alcohol intake in pregnancy can result in foetal abnormality. It is advised to avoid alcohol altogether when trying to conceive.

3. Prevention of spina bifida and other neural tube defects: There is evidence that a small dose of folic acid (400mcg) is helpful in lowering the incidence of foetal abnormalities such as spina bifida.

All women going through the IVF programme should consider taking this small daily dose of folic acid before commencing treatment. Please note that any women on anti-epilepsy drugs and those women with a BMI above 30 should take an

increased dose of 5mg available on prescription from your GP.

4. Rubella (German Measles):

The unit will check that you are immune to German Measles at your first visit in the form of a blood test. Although most women were vaccinated whilst at school, the vaccine occasionally is not effective. If you are not immune to Rubella and you contract the disease in pregnancy, it can have a disastrous effect on the foetus. If needed you can be re vaccinated by your GP with the MMR vaccine.

5. Cervical smears:

Regular cervical smears lower the incidence of cervical cancer. In the United Kingdom women routinely have smears performed every 3-5 years. It is advisable to have a repeat smear performed before you start on treatment, if you are not up to date.

Change of Details

It is essential that you notify Yorkshire Fertility of any change of address, telephone number/s or G.P. prior to or during your treatment. This will ensure that any communication to you or your G.P. will be directed to the most appropriate place.

Those couples funded by Clinical Commissioning Groups (NHS) must appreciate that their treatment can only be funded by the said Trusts as long as they are resident within the trust's geographical boundaries.

If ICSI is performed on the day of egg collection, please be aware that fee paying patients will be required to pay an additional cost. See staff for details.

Payment for treatment is to be paid by credit/debit card. American Express is not accepted.

Our Pregnancy Rates

Year	No Of Cycles	Pregnancy Rate Per Cycle IVF	Pregnancy Rate Per Cycle ICSI	Pregnancy Rate Per Cycle FET
2015	433	45%	35%	47%
2016	454	47%	48%	43%
2017	535	45%	40%	39%

Success Rates

The results quoted above are taken from Yorkshire Fertility.

More data can be found on our website www.yorkshirefertility.co.uk

This does not take into account any additional pregnancies that occur as a result of transferring spare frozen embryos.

The chances of achieving a pregnancy will depend on many factors;

• The quality and quantity of your available embryos.

• The reason why you are unable to conceive.

• Whether you have been pregnant before.

• Most significantly, your age.

Some couples find the thought of IVF quite unnerving and feel that they would like help to cope with this very stressful time in their lives. We have several ways that we try to help with this:

• An independent fertility counsellor (see details).

• Our fertility nurses who can be contacted through Yorkshire Fertility.

Advice and support during treatment should be directed to Yorkshire Fertility on:

01422-261344. For URGENT problems between 4pm and midnight Monday to Friday, Weekend and bank holidays 8am to midnight you can contact switchboard on 01422 357171 and ask for the IVF team member on call. After midnight if you have made an injection error contact the gynaecology ward on 01422 224415.

In the case of other emergencies you will need to attend the accident and emergency department.

Complaints

If you have any complaints, you can approach any member of staff who will be more than delighted to discuss things with you. You may also write to Helen Marvell - Clinical Lead Nurse who will respond to your complaint within 14 days of your letter arriving.

We are always happy to receive any comments or suggestions that could help improve our clinic. Please speak to any member of staff with your suggestions or write your suggestions and place them in the suggestions box provided in the waiting area.

We will keep you informed of any changes as a result of your suggestions. You can also visit our website on www.fertility.cht.nhs.uk. The Trust has got an official complaints procedure. Information regarding this may be obtained from Yorkshire Fertility or from the

Patients Advice Department at the Calderdale Royal Hospital.

The HFEA

The Human Fertilisation & Embryology Authority exists to regulate any clinic that carries out assisted conception procedures involving the removal of eggs and sperm from the body and the transfer of any resulting embryos. It is there to make sure that patients' best interests are looked after and that the clinic maintains a high standard of practice at all times. Every IVF clinic is registered with the HFEA. In Halifax, we form part of the Leeds Fertility (registration number 0314) and Care Manchester (registration number 185).

The HFEA produce a range of leaflets about treatments involving eggs and sperm as well as a detailed patient guide, which contains important information about all clinics in the United Kingdom. If you wish to contact the HFEA, you can telephone them on 020 7291 8200 or you can access their website on www.hfea.gov.uk

Welfare of the child: We believe it is of paramount importance to ensure the welfare of the future child. We also have a legal requirement to consider the welfare of any child born as a result of infertility treatment. In making this assessment we consider both of your medical histories, your age and an independent assessment from your G.P.

Any concerns will be discussed with you before treatment is offered. You will be required to sign a declaration with regard to the welfare of the child.

Research

Both the Halifax Unit and the Central Units are actively striving to improve clinical success rates. One of the ways of achieving this is to research various aspects of IVF treatment. In the build-up to your treatment the clinical staff will discuss with you both, the research programmes currently being undertaken. You are under no obligation to participate in any

research, and non-participation will not jeopardise any of your treatments.

These are some examples of how you can help us:

1. Your unfertilised eggs may be used for biologists in the laboratory to practice sperm injection techniques.

2. Your excess poor-quality embryos may be used to learn techniques such as pre-implantation diagnosis, or to research on various embryo environments.

Further information will be given to you during your first visit.

Counselling

What is counselling?

Counselling is a confidential and sensitive relationship where the

Yorkshire Fertility Counsellor meets with individuals and couples to discuss the personal, psychological or social effects of their treatment. The counsellor is impartial and wishes only to offer you the psychological support you deserve

What is counselling in the context of my treatment?

It is recognised that fertility treatment can cause a great deal of stress and anxiety. This often affects both partners and can impact on the ability to cope with domestic, social and working life. It often affects both couples and that is why it is often most appropriate for couples to be seen together. Sometimes very difficult decisions have to be made and difficult questions asked.

People often feel a range of confusing or unusual emotions such as depression, anxiety, anger or hostility, guilt, tearful, feelings of grief and loss, problems with sleeping or eating and difficulties in coping in social and work situations.

The role of the counsellor in this context then is to offer you emotional and psychological support at a time when you need it, to help you answer difficult questions for yourself.

The counselling service aims to be sensitive and caring and you are entitled to take advantage of it. Your psychological wellbeing is therefore of primary concern to the counsellor. It is offered freely and you should not feel hesitant to ask for it even if it is not offered.

When can I ask for counselling?

You can request to see the counsellor any time you like - before, during or after your treatment. You will be offered counselling by staff at the Unit and they can make arrangements for you. However, should you wish to make your own arrangements you can contact the counsellor directly yourself as detailed below.

Does it cost me anything?

No. The service is provided by Yorkshire Fertility.

Will I/we be seen as weak or a nuisance if I/we ask for counselling?

(Absolutely not) If this were thought to be so, the counselling service would not be available for you. We all recognise the psychological stress that treatment causes and difficult decisions that need to be made.

What might I/we hope to gain from seeing the counsellor?

This is difficult to say as different people benefit in different ways. Counsellors, through attentive listening and a sense of empathy help couples to clarify and understand the circumstances that affect their lives and relationships. They are able to help you to make choices and decisions and to give you the support you need throughout your treatment. They demonstrate a capacity for offering support within a non-judgmental and respectful relationship.

But I never talk about personal things – how will counselling help?

It is the responsibility of the counsellor to assist you in a sensitive and caring way to talk. You will not be pushed to discuss anything you do not wish to. The counsellor is there simply to offer

the opportunity in an unhurried and relaxed, safe environment to make it comfortable and safe for you to talk.

Do I have to see the counsellor?

No, but if you are unsure if it will help, please contact the counsellor and ask.

How long does counselling take?

Each session usually lasts up to 1 hour. In many circumstances one or two sessions may be enough to support you over the immediate crisis. If, however, you or the counsellor feel further time is needed this will be discussed and arranged at the time.

How do I contact the counsellor?

An appointment can be made to see the counsellors by telephoning the unit on 01422 261344

Glossary of Terms

Asthenozoospermia Sperm with poor motility.

Azoospermia Complete absence of sperm in the ejaculate.

Antisperm Antibodies Sticky proteins on sperm causing immobilisation.

Epididymis Coiled tubing outside the testicles which store sperm.

Electro ejaculation The use of electrical stimulation to aid production of asemen sample in impotent or paralysed men.

Gametes Male sperm and female eggs.

Hypospadias Congenital abnormality, affecting male offspring, in which the opening of the urethra is misplaced or malformed.

Kleinefelter's Syndrome Men with an extra X chromosome.

Oligozoospermia Low numbers of sperm in the ejaculate

PESA Percutaneous Epidymal Sperm Aspiration, involving sperm being retrieved directly from the epididymis using a needle.

Teratazoospermia High numbers of abnormal sperm in ejaculate.

TESA Testicular Sperm Aspiration involving sperm being retrieved directly from the testes using a needle.

TESE Testicular Sperm Extraction involving sperm being retrieved from a biopsy of testicular tissue.

Additional Technologies

Embryoscope

During treatment by in vitro fertilisation (IVF), or Intracytoplasmic Sperm Injection (ICSI), conventionally, embryos are kept in incubators, which strictly regulate temperature. Over a period of 2 – 5 days, the embryos are examined (by removing the dish from the incubator) and observed under a temperature-controlled microscope.

In order to minimise the disturbances to the embryos environment, these observations are minimised to 4 or 5 occurrences during the whole treatment, so offering brief “snap shots” of how they are developing, thus enabling the ‘best’ embryo(s) to be selected for embryo transfer. By contrast, the EmbryoScope offers continuous surveillance of embryos in a safe, undisturbed and controlled environment, from which they do not have to be removed for examination. The system takes a photograph every 10 minutes of each embryo providing up to 140 images per day; thus creating continuous time-lapse ‘moving’ images, which are then stored automatically within the patient file for review at any time during the embryo’s development.

Emerging research is suggesting that the vast amount of information collected by the EmbryoScope is extremely useful in helping to identify those embryos with the highest implantation potential. The data suggests that the timing of

certain developmental events in the early embryo, together with its appearance, is increasingly predictive of implantation potential.

Additional cost see fee schedule

Embryo Glue

Embryo Glue is a product developed to closely resemble the environment in the uterus at the time of implantation. It is not glue in the common sense, but acts as glue by increasing the chance of implantation of the embryo to the uterus.

Embryo Glue is a fluid that contains the carbohydrates and amino acids needed to support the embryo during transfer and implantation. It has a relatively high concentration of a substance called Hyaluronan. Hyaluronan is a natural substance found in all tissues in the body, and the levels of

Hyaluronan increases in the uterus at the time of implantation. It is thought that the Hyaluronan in Embryo Glue acts like a bridge between the embryo and the uterus, having a glue-like effect. Also, the higher concentration of hyaluronan thickens the solution the embryo is kept in, to be more similar to the consistency of the fluids within the uterus. This allows better mixing of the embryo and uterine fluids and is believed to minimize drifting of the embryo.

Additional cost see fee schedule

Extended Culture / Blastocyst Transfer

Definition of a blastocyst

• An embryo that has developed for five to seven days after fertilization and has

2 distinct cell types and a central cavity filled with fluid (blastocoel cavity).

• The cells in a blastocyst have just started to differentiate.

• The surface cells that surround the cavity (just under the outer shell) are called the trophectoderm and will later develop into the placenta.

• A more centrally located group of cells - the inner cell mass, will become the foetus.

Advantages of blastocyst transfer for IVF

• In natural conception 2 to 3-day-old embryos are normally in the fallopian tubes, not in the uterus. The embryo gets to the uterus about 80 hours after ovulation.

• Embryo implantation process begins about 3 days later - after blastocyst formation and hatching out of the embryonic shell have occurred.

• Therefore, if in vitro culture conditions are maximized so healthy blastocysts form at a high rate, and then day 5 or 6 blastocyst embryo transfer can be done. The uterine lining on day 5 or 6 should be receptive to the arriving embryo - this a more "natural" time for the embryos to be in the uterus. It is the same timing as with a natural pregnancy. The transfer is done shortly before the time for actual invasion and implantation.

Recent research has suggested that where embryos are transferred to the womb at the Blastocyst stage (4 to 6 days after insemination, rather than 2 or 3 days after insemination as with conventional IVF), pregnancy rates may be improved. This procedure involves allowing the embryos to develop in the laboratory to the blastocyst stage before placing them in the womb.

Additional cost see fee schedule

Useful Telephone Numbers

CARE Fertility, Manchester
Reception: 0161 249 3040
Mobile: 07714845039
(Out of hours)
CARE Fertility, Sheffield
Reception: 01142 506067
Mobile: 07917147663
(out of hours)
Leeds Fertility
Reception: 0113 206 3111
Switchboard: 0113 243 3144
(out of hours)
Manchester Fertility
Switchboard: 0161 300 2730
Mobile: 07584350542
(Out of hours)

Further information available at:
www.yorkshirefertility.co.uk

If you have any comments about this leaflet or the service, you have received please contact:

Clinical Lead Nurse
Yorkshire Fertility
Broad Street Plaza
51 Northbridge
Halifax
HX1 1UB
Telephone (01422) 261344

If you would like this information in another format or language contact us.

Czech
Potřebujete-li tyto informace v jiném formátu nebo jazyce, obraťte se prosím na výše uvedené oddělení

Hungarian
Amennyiben ezt az információt más formátumban vagy nyelven szeretné megkapni, vegye fel a kapcsolatot fenti részlegünkkel.

Polish
Jeżeli są Państwo zainteresowani otrzymaniem tych informacji w innym formacie lub wersji językowej, prosimy skontaktować się z nami, korzystając z ww. danych kontaktowych

Punjabi

ਰ ਤੁਸੀਂ ਇਹ ਜਾਣਕਾਰੀ ਕਿਸੇ ਹੋਰ ਪ੍ਰਾਰੂਪ ਜਾਂ ਭਾਸ਼ਾ ਵਿੱਚ ਲੈਣਾ ਚਾਹੁੰਦੇ ਹੋ, ਤਾਂ ਕਿਰਪਾ ਕਰਕੇ ਉਪਰੋਕਤ ਵਿਭਾਗ ਵਿੱਚ ਸਾਡੇ ਨਾਲ ਸੰਪਰਕ ਕਰੋ।

Urdu

اگر آپ کو یہ معلومات کسی اور فارمیٹ یا زبان میں درکار ہوں، تو برائے مہربانی مندرجہ بالا شعبے میں ہم سے رابطہ کریں.

Author: Yorkshire Fertility Date published: April 2021 Version no: 3.0