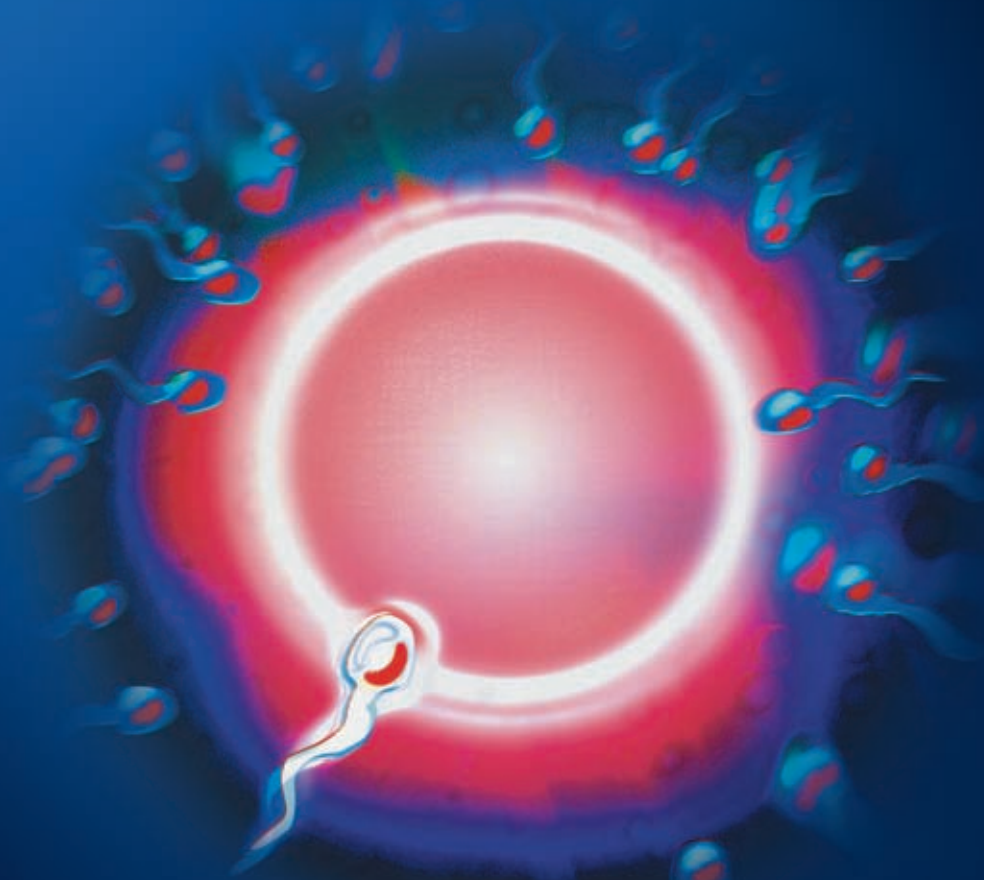




Midland Fertility Services

IVF: In Vitro Fertilisation



‘Building futures,
transforming lives’





Useful Contacts

Infertility Network UK	0870 118 8088	www.infertilitynetworkuk.com
British Infertility Counselling Association (BICA)	01372 451626	www.bica.net
Twins and Multiple Births Association (TAMBA)	0800 138 0509	www.tamba.org.uk
Miscarriage Association	01924 200799	www.miscarriageassociation.org.uk

What is IVF?

In vitro fertilisation – IVF – literally means fertilisation ‘in glass’. Instead of the sperm penetrating the egg (oocyte) within the body (in vivo), it does so within the laboratory in a sterile, disposable dish. IVF using the standard insemination technique requires approximately 150,000 sperm for each egg. The inseminated

eggs are placed in an incubator overnight and are checked the following morning for signs of fertilisation. The fertilised eggs (embryos) are then cultured before placing one or two of the best quality embryos into the uterus. Any remaining good quality embryos can be frozen and stored for any future attempts to conceive.

How is IVF carried out?

In order to give a good chance of pregnancy, MFS usually collects several eggs by stimulating the woman’s ovaries using fertility drugs which start the growth of several follicles (small fluid filled sacs on the ovaries where the eggs are produced). There are several ways in which this can be achieved and your fertility nurse will advise which method best suits you. The most common method of stimulation proceeds as follows.

Preparing your ovaries

The clinical staff will carefully prepare your ovaries for stimulation and control the rate of growth of the follicles within them. This is best achieved by first ‘switching off’ the hormones controlling your natural menstrual cycle by the administration of a drug, given either as an injection or via a nasal spray. This drug acts on the pituitary gland and may have side effects similar to the menopause. This is perfectly normal and is only temporary.

After two to three weeks of taking this first

drug you will be asked to attend the unit for an ultrasound scan. MFS will scan your ovaries and the lining of your uterus to ensure that the drug has worked sufficiently and that you are now ‘downregulated’, i.e. your own hormones have been successfully ‘switched off’. This scan is therefore often referred to as the ‘down-regulation’ scan.

The next stage is to stimulate your ovaries with fertility drugs and you will need to inject these for between seven to 16 days. MFS clinical staff usually teach you to give your own injections when administering these drugs. If preferred, your partner can be taught to do this instead. Most women find that it is not too difficult to learn and it means that they can continue with their daily routine without too much interruption.

You will be asked to attend the unit for some scans during this period for us to monitor how many follicles are growing and their sizes. When we feel that the follicles have grown



sufficiently we will inform you of the day of your egg collection.

Different drug regimes may be used if this is thought to be better for you.

Maturing your eggs

Before we can collect the eggs which have been developing within the follicles we need to initiate their final stage of development. In order to mature the eggs you will give yourself an injection of hCG. This injection needs to be administered at a specific time, 35 hours before your egg recovery is due. Once the hCG has been administered, there is no further need for fertility drugs.

Producing your sperm sample

The sperm sample needs to be produced at the clinic as soon as you arrive and we have a quiet room close to the laboratories for this purpose.

This means that you can be together both during your egg recovery and afterwards whilst you are recovering. In **exceptional circumstances** a sperm sample may be produced at home. If circumstances require, you may have a sperm sample frozen and stored prior to this treatment. A charge will be made for this service.

Egg collection

The procedure is performed under ultrasound guidance by an experienced practitioner. Each follicle is punctured in turn and the follicular fluid drained into sterile tubes via a needle attached to a suction pump. The embryologist then examines the fluid and finds the eggs within it using a microscope. These eggs are washed and placed into labelled culture dishes before being placed into an incubator. The incubator mimics the inside of the body, keeping the eggs warm and at low oxygen concentrations.

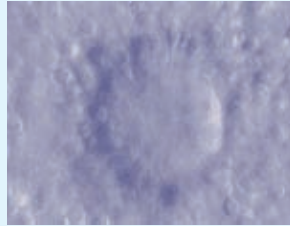
During the egg recovery you will be given a local anaesthetic and a sedative; further pain relief is available if needed. Although you will be awake during the procedure, most women describe the procedure only as uncomfortable and many hardly recollect it subsequently. A nurse will be with you constantly throughout the procedure, as can your partner, if you choose. You will be monitored continuously to check your heart rate and oxygen levels. In very rare cases (about 1 in 100) the drugs may fail to properly control your cycle and you may ovulate before your egg collection. Unfortunately we are unable to predict to which women this may happen.

Sperm preparation

Around the time of the egg collection a second embryologist prepares the sperm for insemination. This is usually from the sample produced earlier that day, but can also be from a frozen sample. The best quality sperm are isolated using a sperm filtration system and are then washed in culture media. The sperm are then placed in the incubator until it is time for the eggs to be inseminated.

Egg insemination

Later that day approximately 150,000 sperm are placed with each egg and the dishes are returned to the incubator overnight. The eggs are then examined the next morning for signs of successful fertilisation. Embryos can be transferred to the uterus between two and six days after insemination. Good quality embryos that are not transferred may be frozen for use at a later date (refer to the MFS leaflet entitled 'Embryo Freezing').



Oocyte
(EGG)



Fertilised Oocyte
(2PN)



2 Cell Embryo



4 Cell Embryo



8 Cell Embryo

Sequence of fertilisation and embryo development.

How many eggs will fertilise?

The mixing of eggs and sperm 'in-vitro' does not guarantee fertilisation. Successful fertilisation usually requires a good quality, mature egg and sperm capable of penetrating the egg shell (zona). Once a single sperm has entered, the egg has to prevent any further sperm from penetrating. A series of complicated events then take place, involving the chromosomes (the genetic building blocks) from both the egg and the sperm.

This delicate procedure is successful for 60-70% of all eggs inseminated by the conventional method. The fertilised eggs are now referred to as embryos.

The fertilisation rate can vary between patients and until we have performed your very first IVF cycle we will not know your personal fertilisation rate. There is also a chance that none of the eggs will fertilise.

When and how are embryos transferred to the uterus?

Embryos may be transferred to the woman between two and six days after the egg recovery and the most suitable day will be discussed with you when planning your treatment (see also the MFS leaflet entitled 'Blastocyst Transfer'). The embryo transfer procedure is ordinarily very straightforward and takes approximately twenty minutes to perform; no longer than an average cervical smear.

The procedure is performed by a highly trained nurse or doctor. Sedation or pain relief is not normally necessary. The nurse or doctor and embryologist performing the embryo transfer will discuss the quality of your embryos with you before the procedure.

The embryos are then loaded into a catheter (a fine sterile, plastic tube) which the nurse or doctor threads carefully through the cervix (the neck of the womb) and into the uterus under ultrasound guidance. When it is in the perfect position, the embryos are expelled from the tip of the catheter. The catheter is passed back to the embryologist who checks that they have been successfully transferred and that they have not been retained within the catheter. You will be given some hormones, usually in the form of vaginal pessaries, which you will be asked to administer in the days following your embryo transfer. These hormones help to maintain a thick endometrial lining, providing the optimal environment for the embryos to implant.

Do I need to take any precautions following my embryo transfer?

Providing you feel well, you should be able to continue with your everyday tasks as normal. Some people wish to continue working in order to take their mind off the two week wait for

their pregnancy test. Others prefer to take things easier. Your doctor or nurse will give you some advice on these matters following your embryo transfer.

What happens to any remaining embryos?

Good quality embryos that are not transferred may be frozen for use at a later date (refer to the MFS leaflet entitled 'Embryo Freezing'). You may be asked to contact the embryologists to find out if we have been able to freeze any

embryos and you will also receive a written summary of the treatment cycle, which will include this information. Only suitable embryos will be frozen as they have to meet strict criteria if they are to survive the procedure.

For whom is IVF suitable?

There are several types of sub-fertility where IVF can help, such as tubal blockage, endometriosis, male infertility and unexplained infertility. Some couples who have tried less invasive fertility treatments, such as intra uterine insemination (IUI) may wish to try IVF if these other procedures have failed. IVF can give the fertility team more information regarding the quality of the eggs and whether fertilisation is taking place. Also, women

whose Fallopian tubes are blocked, so preventing the sperm from reaching the egg, or the embryo from reaching the uterus, will require this blockage to be either removed by surgery or by-passed using IVF. Your fertility nurse specialist will discuss the advantages, disadvantages and limitations of IVF with you to help you decide if this is the treatment most suited to your own particular situation.

How safe is IVF?

The procedures which are performed for IVF, such as the egg recovery and embryo transfer, are all out-patient procedures which do not require a general anaesthetic, only sedation. They are classed as relatively low risk and thousands of women each year undergo IVF with no problems whatsoever. There are, however, three main areas that can cause problems.

OHSS

Ovarian Hyperstimulation Syndrome (OHSS) is caused by an over-response by the ovaries to the fertility drugs. MFS aims to develop approximately eight – 10 follicles but sometimes many more can grow. This syndrome can have symptoms, which range from very minor, such as feeling slightly bloated, to quite serious side effects, which may require hospitalisation. Some people are more prone to this occurring than others. MFS will try to predict how well your ovaries will respond to the drugs by measuring various hormone levels before you start your treatment – thereby helping us to prescribe an appropriate level of fertility drug. You will be given ultrasound scans throughout your ovarian stimulation so that the rate of follicular development can be monitored and your dose of drug will be adjusted if we think your ovaries are over-responding. Your nurse will inform you of the signs of OHSS to look out for but you should also read the leaflet entitled 'OHSS'. The symptoms of OHSS can become far worse in pregnancy and so on rare occasions we may wish to freeze all of the embryos and delay your embryo transfer until we feel that it is safe to do so.

Multiple Pregnancy

Approximately 25% of all IVF pregnancies at MFS are multiple, mainly twins (24%) and, much less commonly, triplets (1%). Although the thought of an instant family can be quite appealing, especially after the efforts of fertility treatment, multiple pregnancies bring additional risks both to mother and babies. The HFEA now limits the number of embryos that may be transferred to a maximum of two for women under 40 years old. The HFEA has also recommended reducing the multiple birth rate to 10% and so, for certain patients a single embryo transfer may be advised. A multiple pregnancy carries an increased risk of the babies suffering long-term disabilities or handicaps such as cerebral palsy and they are also much more likely to suffer from chronic health problems associated with low birth weight. The extra strain on physical, emotional and financial resources when caring for more than one baby at a time cannot be ignored. (Please refer to the MFS leaflet 'Multiple Pregnancies'.)

Ectopic Pregnancy

There is also a risk that a pregnancy can develop in the Fallopian tubes instead of the uterus. This is known as an ectopic pregnancy which, if left undetected, can have serious consequences. Following a positive pregnancy test, you will be asked to return to the unit two weeks later for an early pregnancy scan. At this scan, we will check that the pregnancy is a healthy one and that it is inside the uterus. (Please refer to the MFS leaflet entitled 'Ectopic Pregnancy'.)

The impact of treatment on IVF-conceived babies

The evidence so far is that pregnancies following IVF treatment proceed in the same way as other pregnancies, but fertility patients may face other anxieties. Over three million

babies have been born world-wide following IVF treatment and, to date, continuing research into long term effects has identified no significant problems.

Do I need to give permission for IVF?

Once you have decided that IVF is an appropriate treatment, you will be asked to complete various forms, including giving

consent to the egg recovery, the mixing of your eggs and sperm and the embryo transfer.

How successful is IVF with MFS?

Midland Fertility Services started IVF in 1987 and the pregnancy rates have improved significantly over the years and are well above the national average. However, like all types of IVF everywhere, a single cycle is still more likely to fail than succeed. Please visit

www.midlandfertility.com for the success rates for IVF at MFS or see our current Patients' Guide to Services. If you have not received a copy of this, or would like some help in understanding the data, please ask a member of staff.

What happens if treatment fails?

If your treatment fails we may still be able to learn something from it and we will certainly share our experiences with you. As with all forms of fertility treatment, the process can be physically, financially and emotionally draining. Staff at MFS are here to support you, including our team of counsellors (see the MFS leaflet entitled 'Counselling'). When you feel ready, we are here to talk about your treatment and to give advice on any future treatment options you may want to consider.

If you have decided that you no longer want to pursue fertility treatment, you may wish to explore other ways of achieving a family. Discontinuing fertility treatment can be a difficult decision, and you may wish to talk these issues through with a counsellor.

Please ask any of the MFS team if you require telephone numbers for MFS counselling services, other support groups or adoption agencies, or visit www.midlandfertility.com and view the 'Useful Links' page.

What happens if pregnancy occurs?

Please contact MFS as soon as you know the result of your treatment, whatever the outcome. Not only will our staff be delighted to know that the treatment has been successful, but equally important, we have a legal duty to inform the HFEA of the outcome. You may have been given some hormones to help maintain a healthy endometrium in which the embryo can implant, in the form of injections, tablets or vaginal pessaries. If you have a positive pregnancy test you may have to request a further supply. Do not stop taking these until you have checked with your fertility nurse or MFS doctor.

Following a positive pregnancy test you can book an appointment for a pregnancy scan two

weeks later. At this very early stage of development, we should be able to see a gestational sac containing the developing fetus with a beating heart. This scan is important to ensure that the pregnancy is developing normally, within the uterus.

Once this early scan has been performed, you can visit your GP and be booked for your antenatal care like any other pregnancy. Of course, you are welcome to contact Midland Fertility Services at any time for advice or just to let us know how you are getting on. We shall obviously be looking forward to the news on the delivery, and again have a legal duty to report the outcome of your pregnancy to the HFEA.

Next steps

If you are interested in IVF and feel that it might be an appropriate treatment for you, talk it over with your fertility nurse specialist. She will be able to discuss the issues involved in

greater detail and will also be able to give you the latest results from MFS. Scientific staff are always available to give information and guidance.



List of Services

- In Vitro Fertilisation (IVF)
- Intra Cytoplasmic Sperm Injection (ICSI)
- Surgical Sperm Recovery (PESA/TESA)
- Embryo Freezing
- Blastocyst Culture
- Intra Uterine Insemination (IUI)
- Sperm Storage
- Assisted Hatching
- Egg Freezing
- Egg Donation
- Egg Sharing
- Tubal Patency Testing
- Fertility Investigation Package
- Phospholipid Auto-antibody Screen
- Sperm Analysis
- Recurrent Pregnancy Loss and Implantation Failure
- Genetic Screening
- Ovarian Reserve Testing
- Vasectomy Reversal Back-Up

How to get to Midland Fertility Services

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Court Parade, Aldridge,
West Midlands WS9 8LT

t: 01922 455911

f: 01922 459020

e: mfs@midlandfertility.com

w: www.midlandfertility.com

