

Assessment and treatment for people with fertility problems

Understanding NICE guidance – information for
people with fertility problems, their partners
and the public

February 2004



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Assessment and treatment for people with fertility problems
Understanding NICE guidance – information for people with fertility problems, their partners, and the public

Issue date: February 2004

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Copies of this booklet can be ordered from the NHS Response Line; telephone 0870 1555 455 and quote reference number N0466.

A version in Welsh and English is also available, reference number N0467. Mae fersiwn yn Gymraeg ac yn Saesneg ar gael hefyd, rhif cyfeirnod N0467. The NICE clinical guideline on which this information is based, *Fertility: Assessment and treatment for people with fertility problems*, is available from the NICE website (www.nice.org.uk). Copies can also be obtained from the NHS Response Line, reference number N0465.

National Institute for Clinical Excellence

MidCity Place
71 High Holborn
London
WC1V 6NA

www.nice.org.uk

ISBN: 1-84257-547-3

Published by the National Institute for Clinical Excellence
February 2004

Artwork by LIMA Graphics Ltd, Frimley, Surrey
Printed by Abba Litho Limited, London

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About this information

This information describes the guidance that the National Institute for Clinical Excellence (called NICE for short) has issued to the NHS on assessing and treating people with fertility problems. It is based on *Fertility: assessment and treatment for people with fertility problems* (NICE Clinical Guideline 11), which is a clinical guideline produced by NICE for doctors, nurses, counsellors and others working in the NHS in England and Wales. Although the information in this booklet has been written chiefly for people with fertility problems, it may also be useful for their partners and anyone with an interest in fertility or in healthcare in general.

An 'Explanation of medical terms' appears at the back of this booklet. Terms that appear are highlighted in **bold**.

Clinical guidelines

Clinical guidelines are recommendations for good practice. The recommendations in NICE guidelines are prepared by groups of health professionals, lay representatives with personal experience or knowledge of the condition being discussed, and scientists. The groups look at the evidence available

on the best way of treating or managing a condition and make recommendations based on this evidence.

There is more information about NICE and the way that the NICE guidelines are developed on the NICE website (www.nice.org.uk). You can download the booklet *The Guideline Development Process – Information for the Public and the NHS* from the website, or you can order a copy by phoning 0870 1555 455 and quoting reference number N0038.

What the recommendations cover

NICE clinical guidelines can look at different areas of diagnosis, treatment, care, self-help or a combination of these. The areas that a guideline covers depend on the topic. They are laid out at the start of the development of the guideline in a document called the scope.

The recommendations in *Fertility: assessment and treatment for people with fertility problems*, which are also described here, cover:

- the best forms of treatment for people who have problems getting pregnant
- ways of treating people who have a known condition or reason for their fertility problems

- ways of treating people when no reason for their fertility problems can be found.

The recommendations here do not tell you about:

- how fertility problems can be prevented in the first place
- how a pregnancy is managed following fertility treatment
- investigation and treatment of underlying conditions which may reduce fertility, such as endometriosis or sexual dysfunction, other than in relation to treatment for fertility problems
- the use of pre-implantation genetic diagnosis, in which cells from an embryo are tested for inherited disorders before being transferred to the woman's womb.

The information that follows tells you about the NICE guideline on fertility. It doesn't attempt to explain fertility or describe the treatments for it in detail. If you want to find out more about fertility, NHS Direct may be a good starting point (phone: 0845 46 47 if you are in England or Wales). Website: www.nhsdirect.nhs.uk

How guidelines are used in the NHS

In general, health professionals working in the NHS are expected to follow NICE's clinical guidelines. But there will be times when the recommendations won't be suitable for someone because of a specific medical condition, their general health, their wishes or a combination of these. If you think that the treatment or care you receive does not match the treatment or care described in the pages that follow, you should discuss your concerns with your doctor or nurse.

If you want to read the other versions of this guideline

There are three versions of this guideline:

- this one
- the NICE guideline '*Fertility: assessment and treatment for people with fertility problems*', which has been issued to people working in the NHS
- the full guideline, which contains all the details of the guideline recommendations, how they were developed and information about the evidence on which they are based.

All versions of the guideline are available from the NICE website (www.nice.org.uk). This version and the NICE guideline are also available from the NHS Response Line – phone 0870 1555 455 and quote reference N0466 for this version, and N0465 for the NICE guideline.

About fertility problems

Fertility problems affect one in seven couples in the UK. Most couples (about 84 out of every 100) who have regular sexual intercourse (that is, every 2 to 3 days) and who do not use contraception will get pregnant within a year. About 92 out of 100 couples who are trying to get pregnant do so within 2 years.

Women become less fertile as they get older. For women aged 35, about 94 out of every 100 who have regular unprotected sexual intercourse will get pregnant after 3 years of trying. For women aged 38, however, only 77 out of every 100 will do so. The effect of age upon men's fertility is less clear.

If you have not been able to get pregnant after 2 years of regular unprotected sexual intercourse either one, or both, of you may have a fertility problem.

In men, a fertility problem is usually because of low numbers or poor quality of **sperm**. A woman may have fertility problems because she does not produce **eggs** regularly or because her **fallopian tubes** are damaged or blocked and the sperm cannot reach her eggs.

For nearly one third of people, no reason can be found for their problem. This is known by healthcare professionals as having **unexplained fertility problems**.

Guideline recommendations

The following information is written for people looking for advice and treatment for possible fertility problems. It tells you what you can expect as a couple at each stage of assessment, investigation and treatment for fertility problems and about the tests and treatments you may be offered.

The use of the word 'you' in the following information may refer to men or women or a man and a woman together as a couple, as appropriate.

Trying for a baby

There may be some things you can do to improve your chances of getting pregnant. Your doctor should tell you more about the following points.

How often to have sexual intercourse

To give yourselves the best chance of success, you need to have sexual intercourse every 2 to 3 days throughout the month. You do not need to time it to coincide with the days when the woman is **ovulating** (that is, when her **ovaries** are producing **eggs**).

If you are under psychological stress, it can affect your relationship and is likely to reduce your sex drive. So if, as a result, you do not make love as often as usual, this may also affect your chances of getting pregnant.

Alcohol

If you are a woman trying to get pregnant you can cut down the risk of harming a developing baby by not drinking to excess and drinking no more than 1 or 2 units of alcohol once or twice a week. A unit of alcohol is about the same as a small glass (125 ml) of wine or a half-pint of beer or lager.

If you are a man, your fertility is unlikely to be affected if you drink no more than 3 or 4 units of alcohol a day. Drinking excessive amounts of alcohol can affect the quality of a man's sperm.

Smoking

Smoking may reduce fertility in women. Breathing in someone else's cigarette smoke (known as passive smoking) may also affect a woman's chances of getting pregnant.

For men, there is a link between smoking and poorer quality of sperm, although the effect that this has on a man's fertility is not certain. Stopping smoking will improve your general health.

If you smoke, your doctor should offer you help to stop if you wish. The NHS Smoking Helpline can also provide advice and support – the phone number is 0800 169 0 169 and the website is www.givingupsmoking.co.uk

Caffeine

Caffeine is a stimulant that is found in drinks such as tea, coffee and cola. There has been little research into the effect of caffeine on fertility and there is no clear evidence of a link between caffeine and fertility problems.

Body weight

The range of healthy weight is defined by a measurement known as the **body mass index (BMI)**. Your BMI is calculated by dividing your weight in kilograms by your height in metres squared (that is, your height in metres multiplied by itself). A healthy weight is one that gives a BMI of between 20 and 25.

Women who have a BMI of more than 29 can take longer to conceive than women whose weight is in the normal range.

If you are overweight (you have a BMI of more than 29) and you have irregular periods, or no periods at all, losing weight may increase your chances of getting pregnant. If your weight gets down to the normal range, your ovaries may start working again.

Evidence shows that women who take part in group exercise and diet programmes have a better chance of getting pregnant than those who try to lose weight on their own.

If you are underweight (you have a BMI under 19) and you have irregular periods, or no periods at all, you may find that if your weight gets back up to the normal range your ovaries will start working again, and so improve your chances of getting pregnant.

If you are a man and you are overweight (you have a BMI of more than 29), your fertility is likely to be lower than normal.

Tight underwear for men

Some studies have suggested that wearing tight-fitting underwear could reduce the quality of a man's sperm, because it raises the temperature in the testicles. On balance, however, it is not clear whether wearing loose-fitting underwear improves a man's fertility.

Your work

Certain types of work conditions expose people to things (such as X-rays and pesticides) that can affect their fertility. Your doctor should ask you about the work that you do, and should advise you about any possible risks to your fertility.

Medicines and drugs

A number of prescribed and over-the-counter medicines can interfere with your fertility. Your doctor should therefore ask you both about any medicines you are taking so that they can offer you appropriate advice. They should ask you about medicines that have been prescribed for you and about medicines that you have bought over the counter. They should also ask you about drugs you may have obtained yourself (including recreational drugs, such as cannabis and cocaine, and anabolic steroids).

Complementary therapies

There have not been enough studies looking at complementary therapy treatments for fertility. Further research is therefore needed before any of these treatments can be recommended.

Folic acid

Women who are trying to get pregnant should usually take folic acid tablets (0.4 mg a day). Your doctor should give you more information about this. Taking folic acid when you are trying for a baby and for the first 12 weeks of pregnancy reduces the risk of having a baby with conditions such as spina bifida or anencephaly (these are known as neural tube defects, where parts of the brain or spinal cord do not form properly). If you have previously had a child with a neural tube defect, or you are taking medication for epilepsy, your doctor should recommend that you take a larger dose of 5 mg a day.

German measles (rubella)

Your doctor should offer women a test to find out whether they are immune to German measles (also known as rubella). If you are not immune you should be offered a rubella vaccination before you try to become pregnant, because infection with rubella can harm unborn babies. You should be advised to avoid pregnancy for 1 month following your rubella vaccination.

Cervical smear tests

Your doctor will want to know when you last had a cervical smear test and what the result was. If a cervical smear test is due, you should be offered the test before you try to get pregnant. This is because if any abnormalities in cervical cells are missed early on, it could delay treatment of any fertility problem. It is also more complicated to treat abnormalities of cervical cells if you are pregnant.

What happens if you have fertility problems?

If you are concerned that you may have a fertility problem, your doctor should first ask you about aspects of your lifestyle, your general health and your medical history that could be affecting your chances of having a baby. This is known as an 'initial assessment'.

If you have been trying to get pregnant for more than 1 year, your doctor should offer you tests to check the man's sperm and to check if the woman is ovulating or if her fallopian tubes are blocked (although you should not be offered tests to check whether your fallopian tubes are blocked until the results of semen

tests and tests to find out if you are ovulating are known). If either one or both of you has an existing condition or problem that is known to affect fertility (such as a woman has irregular or infrequent periods, previous **pelvic inflammatory disease** or is aged over 35, or a man has had undescended testicles), these tests may be undertaken sooner.

If there is already a known reason for your fertility problems (such as having had treatment for cancer that could have affected your fertility), you should be referred for specialist treatment.

If you are known to have a long-term viral infection (such as hepatitis B, hepatitis C or HIV) and you are concerned about your fertility, you and your doctors will need to think about the implications for any children you might have, before you decide on any fertility treatment. If you do go on to have treatment, you should be referred to a centre that has the facilities and expertise to investigate and treat your problems as safely as possible.

What you can expect from your care

Any decisions you make on investigation and treatment will affect both you and your partner. You should therefore be seen together as a couple whenever possible.

You have a right to be involved in and make decisions on your care and treatment. To be able to do this, you need to understand what is involved and what your choices are. Your healthcare team should therefore tell you about this and give you information in writing, or in some other form that you can easily access and understand (if you do not speak or read English, for example, or if you have a disability). They should encourage you to ask questions if there is anything you do not understand.

Any investigation of your fertility problems should take place in an environment that enables you to discuss sensitive issues, such as sexual problems, if you wish.

If you are diagnosed with a fertility problem, you should be treated by a specialist team. They should tell you about your diagnosis in a sensitive and tactful manner, and give you information about appropriate support groups which you can contact if you wish.

Having fertility problems and going through tests and treatment can in itself be a stressful process. It may put a strain on you individually and as a couple.

Counselling

You should have the opportunity to see a qualified counsellor before, during, and after any treatment you have, regardless of whether the treatment is successful. The counsellor should be someone who is not directly involved in managing your treatment. They should talk over and help you think about what your fertility problems and treatment will mean for you.

Investigating your fertility problems

The rest of this information tells you more about what you can expect at each stage of having fertility treatment.

When you first talk to your doctor about a suspected fertility problem, they should ask you about how long you have been trying to get pregnant, your current health, previous illness, operations or treatments you have had and aspects of your sexual health and history.

If they think that you may have a fertility problem they should offer you tests to check the quality of the man's sperm and to check if the woman is producing eggs regularly and that her fallopian tubes are not blocked (although you should not be offered tests to check whether your fallopian tubes are blocked until the results of semen tests and tests to find out if you are ovulating are known). Depending on the results, you may need treatment to help you get pregnant.

Investigating fertility problems in men

You should be offered a **semen** test to measure the quantity and quality of your sperm. Men produce about 40 million sperm each time they ejaculate. Sperm need to be capable of moving (known as being **motile**) to reach the **egg** and **fertilise** it. About one in 10 men will have an abnormal result on the first semen test but this does not always mean they have a 'true' abnormality. So if the results of the first semen test are abnormal, the test should be repeated.

Ideally this repeat test should be done 3 months after the first, but if it looks as though your sperm count is very low or you have no sperm at all, it should be repeated as soon as possible. Only two men out of 100 will have a second abnormal test. If you have two abnormal tests you should be offered further investigations.

The semen test should not include a test for substances in your sperm known as 'antisperm antibodies'. It is not clear how important these are in affecting fertility and there is no effective treatment available to improve fertility if you have them.

Investigating fertility problems in women

Your doctor should ask you how often and how regular your periods are. If you have regular monthly periods (every 26 to 36 days), you are likely to be **ovulating**. The use of charts of a woman's body temperature taken first thing in the morning (known as basal body temperature) should not be used to check whether you are ovulating normally as they are not a reliable test for this.

Checking your hormone levels

If you have been trying to get pregnant for more than 1 year or if you do not have periods or your periods do not occur often, you should be offered blood tests. These are to measure your hormone levels and find out if you are ovulating, and should include:

- A test to measure a hormone called **progesterone**, which is produced by the **ovaries** after the **egg** is released. (If you have regular monthly periods this test is taken about 21 days, or 3 weeks, after the first day of your last period).
- A test to measure hormones called **gonadotrophins**, which stimulate the ovaries to produce eggs (there are two types: **follicle-stimulating hormone** [FSH] and **luteinising hormone** [LH]).

If tests show you have high levels of gonadotrophins this may mean your fertility is lower than normal.

The value of other tests of **ovarian reserve** (how many eggs you have left, which predicts how close to the menopause you are), such as measuring a substance called Inhibin B, is uncertain and should therefore not be offered to you.

You should not routinely be offered blood tests to measure other hormones. You should only be offered a thyroid test if you show symptoms of thyroid disease, as you are no more likely than any other woman to have thyroid problems. You should only be offered a blood test to measure **prolactin** if you are not ovulating regularly or you have **galactorrhoea** (a condition where the woman produces breast milk not related to a recent pregnancy) or have a tumour in the **pituitary gland** (a gland at the base of the skull).

Checking your fallopian tubes

If you have been trying to get pregnant for more than 1 year or you have had **pelvic inflammatory disease** or **endometriosis** (a condition where cells like those in the lining of the womb are found in other areas of the pelvis, usually causing pain and damage), you should be offered tests to check whether your **fallopian tubes** are blocked. You should not be offered these until the results of semen tests and tests to find out if you are ovulating are known.

Before you have any procedure to check whether your fallopian tubes are blocked, you should also be offered testing (known as screening) for an infection called ***Chlamydia trachomatis*** (known as chlamydia). Chlamydia

can damage your fallopian tubes if it is not diagnosed and treated with antibiotics. If you are infected, you and your partner (or partners) should be referred for treatment and follow up.

If you have not been screened for chlamydia but you are having a procedure to check whether your fallopian tubes are blocked, you should be offered antibiotics beforehand. This is a precaution to deal with the infection in case you do have it.

If you have had no problems in the past, you may be offered an examination of your fallopian tubes by:

- an X-ray (known as a **hysterosalpingogram** or HSG), using fluid injected through the neck of the womb. An HSG can be done in an outpatient clinic, or
- a special ultrasound scan (known as **hysterosalpingo-contrast-sonography**).

Both procedures work well. Which one you are offered will depend on the centre where you are being treated.

You should be offered an operation called a **laparoscopy** and dye test to check your pelvic area and your fallopian tubes if you have, or have had, any of the following:

- pelvic inflammatory disease
- endometriosis
- an ectopic pregnancy (where the embryo develops outside the womb, usually in the fallopian tubes).

The laparoscopy is an operation and should be done under a general anaesthetic. The doctor looks at the womb and fallopian tubes through a very small telescopic instrument (called a laparoscope). Dye is injected through the neck of the womb (called the cervix). Through the laparoscope, the doctor can see whether the dye can get into the fallopian tubes or if there are any blockages.

Checking your womb

Your doctor should only offer you a special examination of your womb (known as a **hysteroscopy**) if there is a good reason. Hysteroscopy is done by putting a small microscope (a hysteroscope) through the cervix and into the womb. Treating problems in this way has not been shown to improve the chances of getting pregnant.

You should not be offered:

- routine tests on your cervical mucus after sexual intercourse (known as a post-coital test) because they do not help to predict your chances of getting pregnant, so are not necessary
- a **biopsy** (a procedure to take a small sample of tissue) of the lining of your womb.

Men: treatment for underlying conditions

Your fertility problems may be caused by a hormone disorder, a blockage in your testicles, a low sperm count (known as **oligozoospermia**), poor sperm quality or because you are unable to ejaculate.

- If you have low levels of **gonadotrophin hormones** (which stimulate the production of sperm) you should be offered treatment with gonadotrophin drugs to improve your fertility.

- If the flow of sperm from your testicles is blocked you may be offered surgery to remove the blockage, as an alternative to using other methods such as surgical **sperm recovery** (see page 49) or **in vitro fertilisation** (IVF; see page 40).

You should not be offered the following treatments because they are not known to improve fertility:

- surgery for varicose veins in the scrotum (known as varicoceles)
- antibiotic treatment for white cells in your semen
- steroids for antisperm antibodies
- treatment with certain hormones (anti-oestrogens, gonadotrophins, androgens, bromocriptine) or kinin-enhancing drugs, if you have an abnormal sperm count for which no cause has been found.

If you are unable to ejaculate

If you are unable to ejaculate, there may be treatments which will restore your ability to do so and improve your fertility. Alternatively, you may be offered surgical **sperm recovery** (see page 49) or **assisted reproduction** procedures (see page 37).

If your sperm count is found to be abnormal you should be offered appropriate treatment. If your sperm count is:

- mildly abnormal – you and your partner should be offered up to six cycles of **intra-uterine insemination (IUI)**. (See page 38 for more information.)
- moderately abnormal – you may be offered IVF. (See page 40 for more information.)
- severely abnormal – you may be offered **intracytoplasmic sperm injection (ICSI)** to inject your sperm directly into your partner's eggs. This may improve your chances of having a baby. (See page 52 for more information.)

Women: treatment for underlying conditions

Your fertility problems may be because you are not **ovulating** normally or because there is a blockage in your **fallopian tubes**.

If you are not ovulating normally

In a natural cycle, a woman should produce one **egg**. If you are not producing eggs normally you should be offered treatment to stimulate your **ovaries** to produce eggs (this is known as **ovulation induction**). The type of treatment you receive will depend on what is causing the problem.

Polycystic ovary syndrome (PCOS)

Polycystic ovary syndrome (PCOS) is a condition where your ovaries produce more small **follicles** (the sacs in which eggs develop) than normal but you do not ovulate regularly. If you have PCOS the first treatment you should be offered is drug treatment with either **clomifene citrate** or **tamoxifen**. If you ovulate in response to this treatment, you can take this for up to a maximum of 12 months. There is an increased risk of having twins, triplets and quadruplets

with this treatment (known as **multiple pregnancy**). Therefore, if you are treated with clomifene citrate or tamoxifen, your healthcare team should offer you an **ultrasound** scan to monitor your response in at least your first cycle of treatment. This cuts down the risk of having more than one baby at a time.

If you ovulate with clomifene citrate but you have not become pregnant after 6 months of treatment, you should be offered continued treatment with clomifene citrate but also have **intra-uterine insemination (IUI)**, see page 38).

Clomifene citrate and tamoxifen do not work for everyone. If you have PCOS, and you have not ovulated on clomifene citrate or tamoxifen alone and you are overweight (that is, you have a **body mass index [BMI]** of more than 25), you may be offered treatment with clomifene citrate and another drug called metformin. Treatment with both of these drugs together increases the chance of ovulation and pregnancy. By following these recommendations, doctors would be using metformin in a way that is not covered by its licence. NICE has reminded doctors that they should explain this to you and seek your consent to taking the drug. You should also be made aware that metformin can have side effects (such as nausea and vomiting).

Alternatively, if you have not ovulated on clomifene citrate, you should be offered an operation called '**laparoscopic ovarian drilling**'.

Laparoscopic ovarian drilling works just as well as some other treatments such as gonadotrophin hormone treatment, but it does not increase the risk of having more than one baby at a time. It does, however, involve a **laparoscopy**, which is a surgical procedure that requires a general anaesthetic. The doctor makes small cuts just below your navel and above your bikini line and looks at your ovaries through a tiny microscope (called a laparoscope). Heat is then applied (a process known as diathermy) to destroy some of the extra follicles.

If you have not ovulated on clomifene or tamoxifen and you have PCOS, you may be offered gonadotrophin hormone treatment. **Gonadotrophins** (follicle-stimulating hormone [FSH] and luteinising hormone [LH]) occur naturally in our bodies. Gonadotrophin treatments can be made either from human sources or produced artificially from yeast cells in a laboratory. They may contain either FSH alone or both FSH and LH. All the preparations work equally well in increasing your chance of having a baby. Your doctor should therefore prescribe the least expensive preparation. Your response to treatment should be monitored using ultrasound.

Your doctors should tell you more about the risks and side effects of these treatments before you start any of them.

- Clomifene citrate and tamoxifen increase the risk of becoming pregnant with more than one baby. You may also get hot flushes and menopausal symptoms.
- Metformin has side effects, which can include nausea, vomiting and other digestive symptoms.
- Laparoscopic ovarian drilling involves having surgery and a general anaesthetic.
- Gonadotrophins increase the risk of becoming pregnant with more than one baby. Your ovaries may get over-stimulated (**ovarian hyperstimulation syndrome [OHSS]**, see page 47). You will also get symptoms of the menopause, such as hot flushes. Gonadotrophins need to be given by injection.
- There are concerns about a possible link between ovulation induction and ovarian cancer, but the link remains uncertain. Your doctor should use the lowest effective dose and duration for ovulation induction.

Other ovulation disorders

If you have an ovulation disorder caused by low levels of gonadotrophin hormones and you have low **oestrogen**, you should be offered **pulsatile gonadotrophin-releasing hormone** or gonadotrophins, as they will help you to ovulate.

If you have a disorder called **hyperprolactinaemia** (a disorder of the **pituitary gland** which can cause irregular periods, production of breast milk and fertility problems) you should be offered treatment with drugs such as bromocriptine. You should be involved in the decision about taking these drugs – this will include discussing with your doctors the safety of bromocriptine (and similar drugs known as dopamine agonists) for women who are intending to get pregnant and the costs of the drugs.

If your fallopian tubes are blocked

If you have blocked fallopian tubes:

- you should be offered in vitro fertilisation, or
- if you have a mild abnormality and are being treated in a centre with appropriate expertise, you may be offered surgery to correct this. Surgery is more effective than having no treatment at all but more research is needed to assess it in comparison to assisted reproduction procedures such as in vitro fertilisation.

If the blockage in your fallopian tubes is close to your womb you may be offered a procedure called 'selective salpingography with tubal catheterisation or cannulation' to clear it and improve your chances of getting pregnant. The doctor should use a tiny microscope called a hysteroscope, and then insert a small tube into the fallopian tubes to clear the blockage.

Endometriosis

Endometriosis is a condition where cells like those in the lining of the womb are found in other areas of the pelvis. Endometriosis can cause pain and damage and it can be mild, moderate or severe.

If you have a laparoscopy that shows you have mild, moderate or severe endometriosis you may be offered an operation (known as surgical ablation or resection) to remove or destroy the endometriosis and improve your chances of getting pregnant.

Following surgical removal of your endometriosis, you do not need to have drug treatment because this prevents you ovulating and does not help your fertility.

If you have mild endometriosis, you should be offered up to six cycles of intra-uterine insemination (IUI, see page 38) to help you get pregnant.

You should not be offered medicine for treatment of mild endometriosis because it does not improve fertility.

If your periods have stopped and you have adhesions in your womb

If you have no periods and tests have shown that tissues in your womb have joined together (known as having adhesions), you may be offered a procedure that involves having a tiny microscope (hysteroscope) inserted into your womb. This enables the surgeon to see and clear the adhesions. It may help your periods to start again, and so improve your chances of getting pregnant.

Treatment for unexplained fertility problems

If your doctors can find no reason for your fertility problems you may be offered one of the following treatments:

- clomifene citrate to stimulate the woman's ovaries to produce eggs
- assisted reproduction through:
 - intra-uterine insemination using fallopian sperm perfusion (see page 39)
 - in vitro fertilisation (IVF, see page 40).

Other methods of assisted reproduction called **gamete intrafallopian transfer (GIFT)** or **zygote intrafallopian transfer (ZIFT)** are not recommended.

Assisted reproduction

Assisted reproduction is the name given to treatments that can help you get pregnant without you having sexual intercourse. There are a variety of procedures available and what is suitable for you will depend on your own circumstances. They include:

- intra-uterine insemination (IUI)
- in vitro fertilisation (IVF)
- IVF with **intracytoplasmic sperm injection (ICSI)**
- the use of donor sperm (**donor insemination**) or eggs (**egg donation**).

Certain forms of assisted reproduction (IVF, ICSI, donor insemination and egg donation) are regulated by law and their use is controlled by the Human Fertilisation and Embryology Authority (HFEA).

If you are considering any method of assisted reproduction, your healthcare team should give you up-to-date information about the health and welfare of any children you have as a result. Current research is broadly reassuring about the health and welfare of children born as a result of assisted reproduction.

Intra-uterine insemination (IUI)

Intra-uterine insemination (IUI) is a procedure in which a man's sperm is placed (**inseminated**) in a woman's womb.

You and your partner should be offered up to six cycles of IUI if:

- you have unexplained fertility problems
- the man's sperm count is slightly abnormal.

In these instances, the woman should not be offered drugs for **ovulation induction** (this is known as an **unstimulated cycle**). Ovulation induction increases your chances of getting pregnant but also increases the risk of having more than one baby at a time and so it is not recommended in these circumstances.

If you have unexplained fertility problems, you should be offered IUI with **fallopian sperm perfusion**. Fallopian sperm perfusion is a technique where the sperm is mixed with a larger volume of fluid. This gives you a better chance of getting pregnant.

You may also be offered up to six cycles of IUI if the woman has minimal to mild endometriosis. In this case, however, it has been proved that using drugs for ovulation induction with IUI will increase your chances of getting pregnant. When drugs are used with IUI, this is known as a **stimulated cycle**. It is not clear how effective IUI is without ovulation induction for women with minimal to mild endometriosis.

If you have PCOS and ovulate with clomifene citrate but you have not become pregnant after 6 months of treatment, you should be offered continued treatment with IUI and clomifene citrate for a further 6 months.

In all cases, you should only be offered a single **insemination** of sperm per cycle of IUI because double insemination does not improve pregnancy rates.

In vitro fertilisation (IVF)

In vitro fertilisation (IVF) is one of the main methods of assisted reproduction. It involves:

- step 1: 'switching off' the woman's natural cycle of egg production in the ovaries (**down-regulation**)
- step 2: stimulating the ovaries to produce more than one egg (**ovulation induction**)
- step 3: collecting the mature eggs from a woman's ovaries
- step 4: collecting sperm from the man
- step 5: mixing them with a man's sperm in the laboratory
- step 6: incubating the fertilised eggs for a few days (fertilised eggs that have started to develop are called **embryos**)
- step 7: putting one or two embryos into the woman's womb after a few days. If an embryo successfully attaches to the inside of the womb and continues to grow, the result is a pregnancy.

You should be offered up to three cycles of IVF if

- the woman is between 23 and 39 years old at the time of treatment **and**
- one or both of you has been diagnosed with a fertility problem (such as having no sperm or both fallopian tubes being blocked) **or**
- you have had infertility for at least 3 years.

Factors affecting your chance of a pregnancy

Your chances of having a baby through IVF are the same for the first three cycles of treatment, but they vary depending on your age. The older a woman is, the less likely she is to get pregnant:

- for every 100 women who are 23 to 35 years old, more than 20 will get pregnant after one cycle of IVF treatment
- for every 100 women who are 36 to 38, around 15 will get pregnant
- for every 100 women aged 39, around 10 will get pregnant
- for every 100 women aged 40 or over, around 6 will get pregnant.

You therefore have the best chance of success with IVF if you are between 23 and 39 years old. Very few women under 23 have IVF, so it is uncertain what their chances of being successful are.

IVF is more effective for women who have been pregnant or had a baby before. Women also have a better chance of success if they have a normal body weight (**body mass index [BMI]** between 19 and 30).

If you drink more than one unit of alcohol a day (see page 10) or you consume caffeine (which is found in drinks such as coffee, tea and colas), it will lessen your chances of success with assisted reproduction procedures, including IVF. This may also be the case if either of you smoke.

Before the treatment

Before you start IVF, you should both be offered tests for HIV, hepatitis B and hepatitis C. This is to avoid passing these infections on to any resulting children or to other people. If you test positive for any of them, you should be offered appropriate treatment and counselling. You and your doctors will need to think about the implications for any children you might have, in deciding on whether to go ahead with IVF.

If you are having IVF because your fallopian tubes are blocked and swollen (a condition known as hydrosalpinx), you should be offered the choice of having your tubes removed through **laparoscopy** before IVF. This increases your chances of a successful pregnancy, but it means you will be unable to conceive naturally in future.

The cycle of treatment begins with stimulation of the ovaries (ovulation induction) and includes collecting eggs and sperm, and the transfer of one or two resulting embryos back into the womb. A **stimulated cycle** of IVF is one in which embryos produced from eggs collected after ovulation induction are used without previously being frozen (see page 59 for more information on freezing embryos). If you have two or more frozen embryos, these should be used before starting another stimulated cycle of IVF.

Ovulation induction and IVF

Ovulation induction therapy involves taking hormones to help your ovaries to produce more than one egg at a time (unlike your natural cycle). If you are having IVF, you should usually be offered a combination of drugs to make your ovaries temporarily inactive (known as **down-regulation**) and then others to make them active again (known as **ovulation induction**). This usually gives better results than using drugs for stimulation alone, as it allows your healthcare team to time your egg collection more precisely.

Down-regulation of the ovaries (step 1)

You should be offered drugs (known as **gonadotrophin-releasing hormone agonists**) to 'switch off' egg production in the ovaries. They make the ovaries more receptive to the gonadotrophin hormones which are used later on to stimulate the ovaries into producing eggs. They are taken in the form of a nasal spray or an injection.

Some other drugs for down-regulation, called **gonadotrophin-releasing hormone antagonists**, reduce the chance of pregnancy, so they should not be offered to you unless you are taking part in a research study.

If you are having down-regulation with gonadotrophin-releasing hormone agonists for IVF, you should also be offered either **progesterone** or **human chorionic gonadotrophin** (HCG, see page 47) to help any resulting embryo attach to the womb. This will improve your chances of a pregnancy.

Ovulation induction (step 2)

Using fertility drugs to stimulate your ovaries helps to produce more than one egg at a time. You should be offered IVF with ovulation induction, as this increases your chances of getting pregnant. IVF using your natural cycle can be offered if you are unable to take the necessary hormones, but this is rare.

The **gonadotrophins** (FSH and LH) are used to stimulate the ovaries to produce eggs in IVF. These are the same drugs used to help produce eggs if you do not ovulate normally (see page 31). These can come from human sources or can be made artificially in a laboratory. All the preparations work equally well in terms of successful birth rates when they are used with down-regulation for IVF treatment. Your doctor should prescribe the least expensive preparation.

If you have ovulation induction with gonadotrophins, you should not be offered growth hormone treatment in addition to ovulation induction treatments because it does not improve your chances of a pregnancy.

Side effects and risks of fertility drugs

Fertility drugs such as gonadotrophins have certain side effects and risks.

- You will get symptoms of the menopause such as hot flushes. Gonadotrophins need to be given by injection.
- You may become pregnant with more than one baby. Multiple pregnancies carry a higher risk of complications for both mothers and babies. You should be offered **ultrasound** scans to monitor the state of your ovaries while you are having ovulation induction, in order to cut down the risk of having more than one baby. However, it is not necessary for your doctors to monitor your **oestrogen** levels as well, as this will not give them any extra information.

- Your ovaries may get over-stimulated (**ovarian hyperstimulation syndrome [OHSS]**) which can cause very serious problems. Some women are more at risk of OHSS than others. If you are having ovulation induction with gonadotrophins, your clinic should have procedures in place for preventing, diagnosing and managing OHSS. You should not be offered the hormone **human chorionic gonadotrophin (HCG)** for ovulation induction if you have any condition which means you have a significant risk of OHSS.
- There are concerns about a possible link between ovulation induction therapy and ovarian cancer, but the link remains uncertain. Your doctor should use the lowest effective dose and duration for ovulation induction.

Your healthcare team should tell you more about these risks before you start treatment. Your doctors should assess what your risks are as an individual before they decide which drugs to offer you.

Human chorionic gonadotrophin (HCG) is a hormone which helps the eggs mature. It can also be used to help an embryo attach to the womb. HCG increases the risk of developing OHSS, and so it should not be offered for maturing eggs in women who have a high

risk of developing OHSS, and it should not be offered as a matter of routine to help embryos attach to the womb. HCG can come from human sources or can be made artificially in a laboratory. All the preparations work equally well in terms of pregnancy rates when they are used to mature eggs. Your doctor should prescribe the least expensive preparation.

Egg collection (step 3)

Your eggs should be collected through a needle, guided through your vagina by ultrasound (known as **ultrasound-guided aspiration**). You will be awake during the procedure but you should be offered an injection to relieve any pain and to make you sleepy. Your healthcare team should follow procedures for sedative drugs published by the Academy of Medical Royal Colleges.

During the egg collection, it has previously been common practice that each **follicle** (the sac containing the egg) is flushed out to ensure the egg is removed. However, if you have developed at least three follicles you should not be offered this procedure, as there is no advantage in it. It also takes longer and may cause more pain.

Obtaining sperm (step 4)

The man should usually be asked to produce a sperm sample on the same day as the woman's eggs are collected.

Some men are not able to ejaculate at this time. The most common reason for this is anxiety. Sometimes an existing condition (such as a spinal cord injury, diabetes or multiple sclerosis) prevents men from ejaculating. If you are unable to ejaculate, your doctors should investigate the reason for it and offer you treatment if necessary.

One option is to obtain sperm through a small surgical procedure (known as **sperm recovery**). If you need to have this done, you should be offered a procedure that is appropriate for your medical circumstances and is in line with your wishes.

You should be offered the chance to freeze some of your sperm after it is retrieved, for possible use later on (see page 59).

If your sperm count is low, or the quality of your sperm is poor, there are further procedures which may be appropriate, depending on your circumstances, and which can be used as well as IVF. They are

intracytoplasmic sperm injection (see page 52) and **donor insemination** (see page 54).

Fertilisation of the eggs (step 5)

Once your eggs and sperm have been collected, they should be put together in a dish or tube and placed in an incubator. The sperm may then fertilise some of the eggs. Any resulting **embryos** should be kept in the incubator for up to 6 days before they are put back into the woman's womb.

If for some reason the eggs are not fertilised, you may in the future be offered intracytoplasmic sperm injection (ICSI) or treatment using donor sperm or eggs (see pages 52 and 54).

Your doctors should explain what these treatments involve. Any discussion they have with you as a couple should allow you equal access to both kinds of treatment.

Transfer of the embryos (steps 6 and 7)

With IVF, the risk of getting pregnant with more than one baby increases with the number of embryos that are transferred into the womb. To balance the chances of a successful birth against the risk of having more than one baby, you should have no more than two embryos transferred in any cycle.

One or two embryos should be transferred into your womb when they are between 2 and 6 days old. The doctor should use ultrasound to guide the placement of embryos into your womb as it can help to improve your chances of getting pregnant.

Women do not need to stay in bed for a prolonged length of time after the embryo transfer. Staying in bed for more than 20 minutes has not been shown to make any difference to the chance of pregnancy.

If you have taken gonadotrophins for down-regulation (see page 44), you also have a better chance of a pregnancy if you take **progesterone** to help the embryo to attach inside the womb.

When the embryo is due to be transferred, the woman is unlikely to be able to get pregnant if the lining of her womb is less than 5 mm thick, so transfer of embryos is not recommended at this time.

Assisted hatching is a method used to thin or open the shell of an embryo in the early stages of development, with the aim of increasing the chances of implanting it successfully into the womb. Research has shown that it does not make any difference to the pregnancy rate, however, so you should not be offered this option.

Intracytoplasmic sperm injection (ICSI)

For some men, their sperm are not capable of fertilising eggs in the usual way. If this is the case, you may be offered a procedure called **intracytoplasmic sperm injection (ICSI)** to inject a single sperm directly into an egg.

ICSI increases the chances of fertilising eggs more than if IVF is used on its own. However, once the eggs are fertilised it makes no difference to the chances of a successful pregnancy.

You should be offered ICSI if:

- you have few sperm in your semen (known as **oligozoospermia**) or your sperm are of poor quality, or
- you have no sperm in your semen (known as **azoospermia**) either because of a blockage or because of some other cause, but you do have sperm in your testes.

You may also be offered ICSI if you have already tried IVF and produced eggs but your eggs did not fertilise.

If you are not able to ejaculate there are a number of ways of obtaining your sperm, such as by using a small surgical procedure (known as **sperm recovery**). If you need to have this done, you should be offered a method that is appropriate to your medical circumstances and is in line with your wishes. You should be offered the chance to freeze some of your sperm after it is retrieved for possible use later on (see page 59).

Before you consider ICSI, your healthcare team should offer both of you appropriate tests and discuss the results and their implications with you. They should also consider whether a genetic problem is involved in your fertility problems.

Some men have a fertility problem as a result of a gene abnormality on their Y chromosome (the male sex chromosome). However, unless this is suspected, you do not normally need tests for this before having ICSI.

If your healthcare team know or suspect that you have a specific gene defect they should offer you appropriate genetic counselling and tests.

If your sperm quality is very poor or you don't have sperm in your semen but this is not caused by a blockage, you should be offered a test known as karyotyping. This checks for abnormalities in your **chromosomes**.

Donor insemination

This form of treatment involves using sperm donated anonymously by another man. As a couple, you may wish to consider using donor insemination as an alternative to **intracytoplasmic sperm injection (ICSI)**. Your doctors should give you access to both options.

You should be offered donor insemination if:

- the man's sperm count or quality is very low and you have decided against having ICSI, or
- he has no sperm in his semen, or
- he has an infectious disease which could be passed on to any children, or
- his blood group is not compatible with the woman's.

Donor insemination may also be considered if the man has a genetic disorder which could be passed on to any children.

Donor insemination can be used for IVF if necessary. The clinic where you are treated should follow the guidelines laid down by the British Andrology Society on selecting and screening sperm donors.

If you are considering donor insemination you should be offered independent counselling as a couple about the implications for you and any potential children. All potential sperm donors should also be offered the chance to see an independent counsellor, to help them to look at what donation will mean for them, any children they have, and any children they might have as a result of donation.

Before you start treatment by donor insemination, your doctors should confirm that the woman is **ovulating**. You should be offered tests to check your **fallopian tubes** if there is anything about your medical history that suggests they may be damaged. If you have no history of damage to your fallopian tubes, you should be offered tests to check your fallopian tubes after three cycles of unsuccessful treatment.

If you are ovulating regularly, you should be offered at least six cycles of donor insemination. To cut down the risks of having more than one baby you should not be offered fertility drugs to stimulate your ovaries.

There are two methods used for timing donor insemination. One is based on measuring the woman's body temperature during her menstrual cycle. The other uses a kit to measure the levels of **luteinising hormone (LH)** in her urine. Both methods are equally effective. Measuring LH levels, however, cuts down the number of visits you need to make to the clinic in each cycle.

You should be offered **intra-uterine insemination (IUI, see page 38)** rather than insemination into the neck of the womb (the cervix) because IUI gives you a better chance of getting pregnant.

If you have not managed to get pregnant after six cycles of donor insemination, your doctors should offer you continued treatment with donor insemination as well as other forms of treatment.

Egg donation

Some women cannot produce eggs, usually because their ovaries are not functioning or have been removed.

If you are a couple in this situation, you may wish to consider egg donation – that is, using another woman's eggs – in order to get pregnant.

Couples should be offered the option of egg donation if:

- the woman's ovaries have stopped working early, or after chemotherapy or radiotherapy
- she has a chromosome abnormality, such as Turner syndrome
- her ovaries have been removed.

As a couple, you may also be offered the option of egg donation if:

- depending on the reasons for failure, you have not had success with IVF treatment
- there is a high risk of passing on a genetic disorder to any children.

If you are considering egg donation, you should be offered the chance to see an independent counsellor to talk over what the treatment will mean for you, any children you have, and any children you might have as a result of treatment.

Women who donate or share their eggs should be screened beforehand for infectious and genetic diseases, in line with guidance issued by the Human Fertilisation and Embryology Authority (HFEA).

If you are considering donating your eggs your doctor should offer you information on the risks associated with **ovulation induction and egg collection**.

Egg sharing

An alternative to egg donation is **egg sharing**. This is where a woman undergoing IVF donates half of her eggs to be given to another woman or a number of women.

Egg sharing is done anonymously. Anyone who is considering taking part in an egg-sharing scheme should be offered the chance to see an independent counsellor to talk over what it will mean for them.

Freezing sperm, eggs or embryos

Sperm, eggs or embryos can be frozen and stored for possible use in the future. This is known as **cryopreservation** (freezing) and **cryostorage** (storage).

If you are having medical treatment that is likely to make you infertile (such as treatment for cancer), you should be offered the opportunity to have some of your sperm, eggs or embryos frozen and stored before you start your treatment. You should be offered the chance to see an independent counsellor to help you cope with the stress involved. They should discuss the potential physical and psychological implications for you, your partner and any potential children resulting from a freezing and storage procedure.

Sperm

Some medical treatments, such as chemotherapy or radiotherapy for other conditions and illnesses, can affect your fertility. If you are a man or adolescent boy about to have surgery on your testes or medical treatment that is likely to make you infertile, your healthcare team should offer you the option of freezing your sperm for later use. The clinic or centre where you are treated should have procedures in place to make sure that healthcare staff understand the value of doing this, so that they can respond quickly and effectively to the situation. Your healthcare team should follow procedures recommended by the Royal College of Physicians and the Royal College of Radiologists.

Eggs and embryos

If you are about to have medical treatment that is likely to make you infertile and you are well enough to have **ovulation induction** and have your eggs collected, you should be offered egg or embryo storage as appropriate. You need to be aware that the success of storing frozen eggs is very limited. Freezing parts of the ovaries is still in the early stage of development.

If you produce more embryos than you need in the course of an IVF cycle, you should be offered the chance to freeze them, provided they are suitable for freezing. Not all the embryos survive the freezing process so some will not be suitable for transfer after thawing.

If any embryos are suitable for freezing, they should be transferred to your womb before you can start another stimulated cycle of IVF involving **down-regulation**, ovulation induction and **egg collection**. This cuts down the number of times you need to have drugs for ovulation induction and the procedure to recover eggs from your ovaries, both of which carry some risks. It also improves the chances of a successful birth.

An embryo that has previously been frozen can be thawed and transferred into your womb either as part of your natural cycle (**unstimulated cycle**) or as part of a cycle controlled by hormone treatment (**stimulated cycle**). If you ovulate regularly, your chances of a successful birth are the same whether your cycle is natural or stimulated.

Your healthcare team should tell you more about what is involved in using previously frozen embryos and discuss it with you before you start IVF treatment.

Where you can find more information

If you need further information about any aspects of fertility or the care that you are receiving, please ask your doctor, nurse or other relevant member of your healthcare team. You can discuss this guideline with them if you wish, especially if you are not sure about anything in this booklet. They will be able to explain things to you.

For further information about the National Institute for Clinical Excellence (NICE), the Clinical Guidelines Programme or other versions of this guideline (including the sources of evidence used to inform the recommendations for care), you can visit the NICE website at www.nice.org.uk. At the NICE website you can also find information for the public about other maternity-related guidance on:

- antenatal care: routine antenatal care for healthy pregnant women (guideline 6)
- pregnancy and childbirth: electronic fetal monitoring (guideline C)

- pregnancy and childbirth: induction of labour (guideline D)
- pregnancy – routine anti-D prophylaxis for rhesus negative women (technology appraisal no. 41)

You can get information on common problems during pregnancy from NHS Direct (telephone 0845 46 47; website www.nhsdirect.nhs.uk).

Explanation of medical terms

Assisted hatching

A technique used in **IVF** to thin or open the shell of an embryo in the early stages of development, with the aim of increasing the chances of implanting it successfully into the womb.

Assisted reproduction

The name for treatments that enable people to conceive by means other than sexual intercourse. Assisted reproduction techniques include **intra-uterine insemination (IUI)**, **in vitro fertilisation (IVF)**, **intracytoplasmic sperm injection (ICSI)**, **donor insemination** and **egg donation**.

Azoospermia

When a man has no sperm in his semen.

Biopsy

A procedure to take a small sample of tissue.

Body mass index (BMI)

The measurement used to define the range of healthy weight. Your BMI is calculated by dividing your weight in kilograms by your height in metres squared (that is, your height in metres multiplied by itself).

Chlamydia trachomatis (Chlamydia)

A sexually transmitted infection which can damage a man's or woman's reproductive system if it is not diagnosed and treated. It can go unnoticed for a long time but can be found through screening tests.

Chromosome

A structure found in cells that contains a person's genetic information in the form of genes.

Clomifene citrate

A fertility drug which stimulates a woman's ovaries to produce one or more **follicles**.

Cryopreservation

The freezing of **eggs, sperm** and/or **embryos** that may be thawed for use in future **IVF** treatment cycles.

Cryostorage

The storage of frozen **eggs, sperm** and/or **embryos** that may be thawed for use in future **IVF** treatment cycles.

Donor insemination

The placing of donor **sperm** into a woman's womb.

Down-regulation

Drug treatment used as part of **ovulation induction** to turn off the natural cycle of **ovulation** before a **stimulated cycle**.

Egg

The female reproductive cell. A woman usually produces one egg in a normal monthly cycle.

Egg collection

A procedure by which a woman's **eggs** are collected from her **ovaries**, usually using a needle guided by **ultrasound**. Also known as egg retrieval.

Egg donation

The process by which a fertile woman donates her **eggs** for use in the treatment of other women or for use in research.

Egg sharing

When a woman having **IVF** donates half of her **eggs** for use by another women or a number of women.

Embryo

A fertilised **egg**.

Embryo transfer

Transfer of one or two **embryos** into the womb as part of **IVF**.

Endometriosis

A condition where cells like those in the lining of the womb are found in other areas of a woman's pelvis, usually causing pain and damage.

Fallopian sperm perfusion

A technique where the sperm is mixed with a larger volume of fluid than in standard **IUI**.

Fallopian tube(s)

The pair of tubes leading from a woman's **ovaries** to the womb. Each month the ovary releases an **egg** into the fallopian tube, and the egg travels through the tube to the womb. The fallopian tube is where **fertilisation** of the egg by a **sperm** takes place in the natural conception process.

Fertilisation

When a **sperm** penetrates an **egg** and forms an **embryo**. Natural fertilisation takes place in a woman's fallopian tubes, but fertilisation can also be done in the laboratory for **IVF**.

Fertility problem

Where no pregnancy results for a couple after 2 years of regular (at least every 2 to 3 days) unprotected sexual intercourse.

Follicle

A small sac in the ovary in which the **egg** develops.

Follicle-stimulating hormone (FSH)

A hormone produced by the **pituitary gland** which stimulates the **ovaries** to produce **follicles**. It can be used as part of **ovulation induction** therapy.

Galactorrhoea

A condition where a woman produces breast milk not related to a recent pregnancy.

Gamete

A reproductive cell (a male **sperm** or female **egg**). The male and female gametes fuse together in fertilisation.

Gamete intrafallopian transfer (GIFT)

A technique by which a woman's **eggs** are collected, mixed with **sperm** and immediately replaced in one or other of her **fallopian tubes**, so that they can fertilise there.

Gonadotrophin-releasing hormone agonist
A drug that temporarily switches off the release of **gonadotrophins**. Used for down-regulation.

Gonadotrophin-releasing hormone antagonist
A drug that temporarily switches off the release of **gonadotrophins** but which is not recommended for use outside research studies.

Gonadotrophins

Follicle-stimulating hormone (FSH) and **luteinising hormone (LH)** are two kinds of gonadotrophin hormones made by the **pituitary gland**. In women, they stimulate the **ovaries** to produce **eggs**. They can be given during **ovulation induction**. Their side effects are hot flushes, multiple pregnancy and **OHSS**. In men, they stimulate sperm production. They can be given to men who have low levels of gonadotrophins to stimulate sperm production.

Human chorionic gonadotrophin (HCG)

A gonadotrophin hormone made by the placenta. The presence of HCG in a woman's blood or urine indicates that she is pregnant. HCG may be used to mature eggs in IVF down-regulated cycles and to help embryos attach to the womb in IVF.

Hyperprolactinaemia

A disorder of the **pituitary gland** which can cause irregular periods, production of breast milk and fertility problems.

Hysteroscopy

A procedure to examine the womb with a small microscope called a hysteroscope.

Hysterosalpingogram (HSG)

An X-ray of the **fallopian tubes**, using fluid injected through the neck of the womb, to check for any blockages.

Hysterosalpingo-contrast-sonography

An ultrasound test of the **fallopian tubes**, using fluid injected through the neck of the womb, to check for any blockages.

Implantation

The process by which an **embryo** attaches to the lining of the womb.

In vitro fertilisation (IVF)

A technique by which **eggs** are collected from a woman and fertilised with a man's **sperm** outside the body. Usually one or two resulting **embryos** are then transferred to the womb. If one of them attaches successfully, it results in a pregnancy.

Insemination

A technique to place **sperm** into a woman's vagina or womb.

Intracytoplasmic sperm injection (ICSI)

A variation of **IVF** in which a single **sperm** is injected into an **egg**.

Intra-uterine insemination (IUI)

A technique to place **sperm** into a woman's womb through the cervix.

Laparoscopic ovarian drilling

Uses a laparoscope to operate on a woman's **ovaries**, and apply heat (a process known as diathermy) to destroy extra **follicles** in the ovaries.

Laparoscopy

A 'keyhole' operation in which the surgeon uses a very small telescopic microscope, called a laparoscope, to examine or operate on an area in a woman's pelvis. Done under general anaesthetic.

Luteinising hormone

One of the **gonadotrophin** hormones made by the pituitary gland. It can be used as part of **ovulation induction** therapy.

Motile sperm

Sperm that are capable of moving.

Multiple pregnancy

When a woman is pregnant with more than one baby at a time.

Oestrogen

A female sex hormone produced by developing eggs in the **ovaries**.

Ovarian hyperstimulation syndrome (OHSS)

A complication following stimulation of the **ovaries** with **gonadotrophin** drugs.

Ovarian reserve

How many eggs a woman has left. Predicts how close a woman is to the menopause.

Oligozoospermia

Low **sperm** count.

Ovaries

A pair of organs in women which produce **follicles** and **eggs**.

Ovulation

The process by which the **ovaries** produce **eggs**. If you have periods every 28 days you should be ovulating around day 14 or 2 weeks after the first day of your period.

Ovulation induction

A course of fertility drugs used to control and/or stimulate a woman's **ovulation**.

Pelvic inflammatory disease

An infection of the womb, fallopian tubes and/or pelvis which can be caused by infections such as chlamydia. Can cause scarring or blockage of the fallopian tubes.

Pituitary gland

A gland in the brain which produces hormones.

Polycystic ovary syndrome (PCOS)

A condition where the **ovaries** often produce more small **follicles** than normal but the woman does not ovulate.

Progesterone

A hormone produced by the ovary after the egg is released. Low levels might mean a woman is not ovulating. Used in IVF to help embryos attach to the womb.

Prolactin

A hormone produced by the pituitary gland that can make a woman produce breast milk.

Pulsatile gonadotrophin-releasing hormone

A drug given to a woman through a pump every 90 minutes to mimic the natural delivery of **gonadotrophins**.

Semen

The fluid containing sperm and secretions that is expelled in an ejaculation.

Sperm

The male reproductive cell produced by men, usually through ejaculation, which fertilises a woman's **eggs**. Men usually have millions of sperm in their **semen**.

Sperm recovery

A surgical procedure to obtain **sperm** from the testicles in men who cannot ejaculate or have a blockage in the flow of sperm from their testicles.

Stimulated cycle

A round of treatment in which drugs are used to make the woman's **ovaries** produce more **eggs** than usual in a monthly cycle.

Tamoxifen

A fertility drug which stimulates the ovaries to produce one or more **follicles**.

Ultrasound

High frequency sound waves used to provide images of the body, tissues and internal organs.

Ultrasound-guided aspiration

A procedure to collect **eggs** using ultrasound images to guide the path of a needle through which the eggs are retrieved.

Unexplained fertility problems

Problems for which no reason can be found.

Unstimulated cycle

A woman's natural cycle. A cycle where no drugs are used to stimulate **egg** production.

Zygote intrafallopian transfer

A process in which **eggs** are fertilised outside the body and then transferred into the **fallopian tubes**.



*National Institute for
Clinical Excellence*

**National Institute for
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MidCity Place
71 High Holborn
London
WC1V 6NA

www.nice.org.uk