Infertility





Couple concerned about fertility Click for

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Couple concerned about fertility and delays in conception

Couples who experience problems in conceiving should be seen together because both partners are affected by decisions surrounding investigation and treatment.

People should have the opportunity to make informed decisions regarding their care and treatment via access to evidence-based information.

These choices should be recognised as an integral part of the decision-making process. Verbal information should be supplemented with written information or audio-visual media.

Information regarding care and treatment options should be provided in a form that is accessible to people who have additional needs, such as people with physical, cognitive or sensory disabilities, and people who do not speak or read English.

People who are concerned about their fertility should be informed that over 80% of couples in the general population will conceive within one year if:

- The woman is aged < 40 years; and
- They do not use contraception; and
- They have regular sexual intercourse (every two to three days)

Of those who do not conceive in the first year, about half will do so in the second year (cumulative pregnancy rate over 90%). Infertility may be due to problems with one or both partners.

Natural female fertility declines with age and increasing maternal age is also associated with increased obstetric risks and risk of miscarriage. This should be noted by women who choose to delay their family.



Same Sex Couples

GP to inform/have conversation about tertiary level fertility pathway with same sex couples. <u>Fertility treatment and referral criteria for tertiary level assisted conception (IVF/IUI) (hweclinicalguidance.nhs.uk)</u>

There should be no restriction to secondary care investigations.

If any known cause of infertility, then secondary care referral should be made, and couple may be eligible for direct access to IVF.

- Female same-sex couples are entitled to IVF treatment on the NHS following 6 cycles of self-funded IUI and a maximum of 6 cycles of NHS funded unstimulated IUI (which will only be offered if prior approval for funding is obtained from the ICB).
- Surrogacy is not funded for male same-sex couples under this policy.

Initial assessment (history and examination) of female

Offer an initial consultation to discuss the options for attempting conception to people who are unable to, or would find it very difficult to, have vaginal intercourse.

Healthcare professionals should define infertility in practice as the period of time people have been trying to conceive without success after which formal investigation is justified and possible treatment implemented.

A woman of reproductive age who has not conceived after 1 year of unprotected vaginal sexual intercourse, in the absence of any known cause of infertility, should be offered further clinical assessment and investigation along with her partner.

HISTORY – Full medical, sexual and social history:

Length of time trying to conceive

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Children born to the women as well as previous pregnancies and miscarriages (with the same or different partners)

Enquire about frequency of sexual intercourse (chances of conception improves with regular sexual intercourse, every 2-3 days) and any prolonged or recurrent absences of one of the partners

Ask about difficulties or potential physical problems such as inadequate penetration or dyspareunia

Length of time since stopping contraception, and type of contraception. Check that there are no problems that may explain the inability to conceive, such as a 'lost' intrauterine contraceptive device.

Frequency and regularity of their menstrual cycles

History of any sexually transmitted infections (STI) or Pelvic Inflammatory Disease (PID)

The timing and result of their most recent cervical smear test.

Where applicable, offer cervical screening in accordance with the national cervical screening programme guidance.

Any previous pelvic surgery (e.g. appendicitis or ovarian cysts)

Ask about symptoms that may indicate ovulatory disorders:

Menorrhagia (abnormally heavy menstrual bleeding).

Oligomenorrhoea (infrequent or irregular menstrual periods).

Amenorrhoea (absence of menstruation).

Dysmenorrhoea (painful periods).

Galactorrhoea or hirsutism.

Excessive exercise, weight loss, or psychological distress.

Symptoms that may indicate uterine, cervical, and peritoneal disorders, including:

Symptoms of PID or endometriosis, such as dyspareunia (difficult or painful sexual intercourse) and dysmenorrhoea.

Intermenstrual or postcoital bleeding.

Risk factors for infertility, including age (fertility in women decreases with age), lifestyle factors, drug history, occupational hazards, and stress.

Ask about systemic disease

- This may include autoimmune disease such as rheumatoid disease or systemic lupus erythematosus (SLE), although the latter e.g. antiphospholipid syndrome may be associated with recurrent abortion
- Chronic kidney injury can impair fertility
- Poorly controlled diabetes mellitus should be improved
- IBS or thyroid disease

A thorough review of all medication is required with a view to both fertility and possible adverse effects on pregnancy, including teratogenicity.

- Legal drugs taken for legitimate purposes may also cause problems: Phenothiazines and the older typical antipsychotics as well as metoclopramide increase levels of prolactin (PRL).
- NSAID use is associated with luteinised unruptured follicles. The patient may be taking drugs like immunosuppressants for autoimmune disease or after transplantation
- Previous treatment for malignancy (chemotherapeutic agents, such as those used in childhood leukaemia) may result in subsequent sterility.
- Surgery and radiotherapy may be relevant if they involved the pelvic region.

EXAMINATION:

- Check BMI (obesity is associated with lower fertility)
- Look for signs of hirsutism and acne (associated with PCOS): Facial hair may be more profuse than normal, although this should be interpreted in the light of racial norms.
- Acne may also indicate high androgen levels.
- There may be a hint of male pattern alopecia with slight bitemporal recession.
- The pubic hairline may extend up towards the umbilicus in a typical male pattern.

Abdominal examination should be performed and it must precede bimanual pelvic examination or it is very easy to miss a large mass like a big ovarian cyst. Gynaecological examination, especially vaginal examination, may indicate undisclosed sexual difficulties - e.g., vaginismus.

Bimanual examination: May find an adnexal mass from an ovary of tubo-ovarian mass or tenderness suggesting PID or endometriosis. Uterine fibroids can

distort the uterus and interfere with implantation.



Initial assessment (history and examination) of male

The patient's smoking, alcohol and drug (including any illicit drugs) history should be recorded. The search for the cause of infertility or subfertility should be systematic and led by clinical features, not a blind screening process for everything

HISTORY – Full medical, sexual and social history:

- Length of time trying to conceive
- Children born to the man (with the same or different partners)
- Enquire about frequency of sexual intercourse (chances of conception improves with regular sexual intercourse, every 2-3 days) and any prolonged or recurrent absences of one of the partners
- History of systemic diseases (e.g. cardiac failure, chronic renal failure, neoplasia, uncontrolled diabetes, liver cirrhosis or thyrotoxicosis)
- History that may suggest primary testicular failure or obstructive azoospermia, including:
 - History of mumps, sexually transmitted infections (STIs), or testicular trauma or torsion
 - Previous urogenital abnormality and treatment (e.g. undescended testis or orchidopexy)
 - Previous surgery (e.g. hernia repair or orchidopexy)/Previous scrotal enlargement/Pain
 - Ejaculatory or erectile dysfunction
 - Erectile dysfunction can occasionally present as a complaint of infertility.
 - Ejaculatory problems particular attention must be paid to the characteristics of micturition and ejaculation:
 - Presence of nocturnal emission.
 - Ejaculatory ability in given circumstances.
 - Primary or acquired disorder
 - Consider psychosexual aspects (e.g., features of affective relationship, pre-existent psychological trauma, previous psychological therapy).
 - Current guidelines recommend that patients should be asked about: Haematospermia. Post-ejaculatory pain.
 Previous or present urethritis or prostatitis. Obstructive or irritative urinary symptoms.
 - Chronic sinopulmonary infection
 - Physical or emotional problems may be present.
- Note previous treatment for malignancy: Chemotherapeutic agents, such as those used in childhood leukaemia, may result in subsequent sterility.
- Surgery and radiotherapy may be relevant if they involved the region
- In men about to receive chemotherapy, the question of sperm banking needs to be considered.
 - Retention of fertility for prepubertal boys with malignancy is a growing field.
- Cryptorchidism: Cryptorchidism is multifactorial in origin and can be caused by genetic factors and endocrine disruption early in pregnancy.
 - Cryptorchidism is often associated with testicular dysgenesis and is a risk factor for infertility and germ cell tumours.
 - Evidence is still inconclusive as to whether early surgical intervention can prevent germ cell loss.
 - In one randomised study it improved testicular growth in boys treated at the age of 9 months compared to those aged 3 years at the time of orchidopexy.
 - Paternity in men with unilateral cryptorchidism is almost equal to that in men without cryptorchidism
 - However, bilateral cryptorchidism significantly reduces the likelihood of paternity.

Drug and medication history:

- Legal drugs taken for legitimate purposes may cause problems: Phenothiazines and the older typical antipsychotics as well as metoclopramide increase levels of prolactin.
- Oral and rectal sulfasalazine impair spermatogenesis. This is reversible when the drug is withdrawn or switched to mesalazine.
- Immunosuppressants e.g., for autoimmune disease or after transplantation.

Examination: Perform a physical examination to identify factors that may contribute to infertility

- BMI must be recorded
- Examine the penis, including a check of position or urethral meatus, for structural abnormality
- Examine the scrotum and testicles for lumps (which may indicate varicocele, hernia, or cancer); small, soft testes (which may indicate hypogonadism); or undescended testes.
- Assess secondary sexual characteristics. In hypogonadism, there may be a decrease in beard and body hair growth and a decrease in muscle mass.
- Look for gynaecomastia, which may indicate hypogonadism.
- Examine for inguinal lymphadenopathy in those with symptoms to suggest an STI or in those with risk factors for an STI.
- Men with ejaculatory disorders should have their fasting glucose performed to exclude diabetes mellitus.
- A comprehensive andrological examination is indicated if semen analysis shows abnormalities compared with reference values.

Lifestyle management

Consider referral to designated clinics for smoking cessation, weight management and alcohol

SMOKING:

- Women who smoke should be informed that this is likely to reduce their fertility.
- Advise women that smoking (including passive smoking) will likely reduce their fertility and that maternal smoking can harm a developing baby.
- Women who smoke should be offered referral to a smoking cessation programme to support their efforts in stopping smoking.
- Women should be informed that passive smoking is likely to affect their chance of conceiving.
- Men who smoke should be informed that there is an association between smoking and reduced semen quality (although the impact of this on male fertility is uncertain), and that stopping smoking will improve their general health.

Please refer to Hertfordshire stop smoking services - <u>http://www.enhertsccg.nhs.uk/smokefree-hertfordshire</u>

WEIGHT MANAGEMENT: see The Management of Overweight and Obese Adults pathway

- Advise women with a BMI less than 19 kg/m2 plus either amenorrhoea or irregular menstruation that gaining weight is likely to increase their chance of conception.
- Explain that women with obesity are at increased risk of infertility and developing maternal and fetal complications during pregnancy.
- Advise women that a body mass index (BMI) of 30 kg/m² or over may increase their time to conceive.
- Advise women with a BMI of 30 kg/m² or over who are not ovulating that losing weight is likely to increase their chance of conception.
- Women with BMI ≥35 should be provided with weight loss advice and consider referral to weight management services
- Participating in a group programme involving exercise and dietary advice, rather than receiving weight loss advice alone, leads to more pregnancies.
- Men who have a BMI of >29 should be informed that they are likely to have reduced fertility.
- Women and their male partners will need to have BMI<30 for consideration of referral to secondary care

Keeping a healthy weight. - https://www.hertsandwestessex.ics.nhs.uk/your-health-and-care/stay-well/weight/

Healthier Families - https://www.nhs.uk/healthier-families/

Exercise well - https://www.hertsandwestessex.ics.nhs.uk/your-health-and-care/stay-well/excercise/

Alcohol:

- Advise women that alcohol consumption during pregnancy is not advised as it can adversely affect the foetus.
- Advise men that excessive alcohol consumption may affect semen quality. However, there is no evidence that drinking within recommended safe limits (no more than 14 units per week) has an adverse effect.
- Offer those who drink excessively support to help them quit. See the CKS topic on <u>Alcohol problem drinking</u> for more information.
- Drink less -<u>Herts and West Essex ICS</u>

Drugs

- Advise that some prescription, over-the-counter, and recreational drugs can interfere with fertility in women and men. Links to NICE CKS.
- Offer users of illicit drugs referral to a specialist drugs and alcohol service.
- Drugs and alcohol | <u>Hertfordshire County Council</u>

Stress management

- Advise that stress in either partner can affect their relationship and is likely to reduce libido and frequency of intercourse, which can contribute to
 fertility problems.
- Explain that psychological stress (for both the woman and the man) may be caused by infertility as well as the investigation and treatment.
- Offer counselling before, during, and after investigation and treatment, irrespective of the outcome of these procedures.

Occupational risks

- Advise anyone concerned about occupational risks to their health, including their fertility, to seek specialist advice from occupational health at their place of work or from the <u>Health and Safety Executive</u> website, which provides detailed information on occupational risks.
- Caffeinated beverages
- Advise that no consistent evidence exists of an association between consumption of caffeinated beverages (tea, coffee, and colas) and fertility problems.

Other lifestyle factors:

- Tight underwear · Men should be informed that there is an association between elevated scrotal temperature and reduced semen quality, but that it is uncertain whether wearing loose-fitting underwear improves fertility.
- Occupation Some occupations involve exposure to hazards that can reduce male or female fertility and therefore a specific enquiry about occupation should be made to people who are concerned about their fertility. Advise anyone concerned about occupational risks to their health, including their fertility, to seek specialist advice from occupational health at their place of work or from the <u>Health and Safety Executive</u> website, which provides detailed information on occupational risks.
- Complementary therapy: Advise that the effectiveness of complementary therapies for fertility problems has not been adequately evaluated, so

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- further research is needed before such interventions can be recommended
- Caffeinated beverages Advise that no consistent evidence exists of an association between consumption of caffeinated beverages (tea, coffee, and colas) and fertility problems.

Advise folic acid, rubella status (advise MMR)

Folic acid supplementation:

Women intending to become pregnant should be informed that dietary supplementation with folic acid before conception and up to 12 weeks' gestation reduces the risk of having a baby with neural tube defects.

The recommended dose is 0.4 mg per day.

For women who have previously had an infant with a neural tube defect or who are receiving anti-epileptic medication or who have diabetes, a higher dose of 5 mg per day is recommended.

Susceptibility to rubella:

Women who are concerned about their fertility should be offered testing for their rubella status so that those who are susceptible to rubella can be offered vaccination.

Women who are susceptible to rubella should be offered vaccination and advised not to become pregnant for at least 1 month following vaccination.



Provide patient information on conception rates and reassurance

Involve both partners in all aspects of management.

Provide evidence-based information (verbal and written) to enable them to make an informed decision regarding their care and treatment. Ensure the information provided is in a form that is accessible to people who have additional needs, such as people with physical, cognitive, or sensory disabilities, and people who do not speak or read English.

Give women and men general advice on the following:

- Chance of conception
- Advise that over 80% of couples in the general population will conceive within 1 year if the woman is aged under 40 years and they have regular (every 2–3 days) unprotected sexual intercourse. About half of those who do not conceive in the first year will do so in the second year (cumulative pregnancy rate over 90%).
- Inform people who are using artificial insemination to conceive and are concerned about their fertility that over 50% of women under 40 years old will conceive within 6 cycles of intrauterine insemination (IUI). About half of those who do not conceive within 6 cycles of IUI will do so with a further 6 cycles (cumulative pregnancy rate over 75%).
- Advise that fertility in women (and, to a lesser extent) fertility in men declines with age.
- There are various causes of infertility, both in men and in women. However, there will be no reason found for the infertility in about 3 in 10 cases. In around 4 out of 10 cases disorders are found in both the man and the woman.

Patient information on infertility is available on:

- The NHS website (<u>www.nhs.uk</u>).
- The National Institute for Health and Care Excellence website (<u>www.nice.org.uk</u>).
- The British Fertility Society website (britishfertilitysociety.org.uk).

Patient support is available from the following charities:

- The British Infertility Counselling Association (www.bica.net).
- Fertility Network UK (fertilitynetworkuk.org).

The Human Fertilisation and Embryology Authority (<u>www.hfea.gov.uk</u>) provides information on In vitro fertilisation (IVF), clinics, and other fertility treatments from the UK government fertility regulator.

The NHS website provides an information guide, trying for a baby, to explain how a woman can prepare for a pregnancy, how conception occurs, and how she and her partner can improve her chances of getting pregnant.

Back to Advise 1 year attempt to conceive or 6 cycles of artificial insemination (AI)

How often to have sexual intercourse

- To give the patients the best chance of success, they must try to have sexual intercourse every 2 to 3 days.
- If they are under psychological stress, it can affect their relationship and may reduce their sex drive.
- If this means they do not have sex as often as usual, this may also affect their chances of getting pregnant.
- For women > 40 who are using IUI rather than sexual intercourse to conceive, more than half of women will get pregnant within 6 cycles of intrauterine insemination. Within 12 cycles, more than 3 out of 4 women will become pregnant.

NICE guidelines state that unstimulated IUI is a treatment option as an alternative for those who would be unable to attempt vaginal sexual intercourse for 12 months. A maximum of 6 cycles of unstimulated IUI will only be offered if prior approval for funding is obtained from the ICB and the couple have previously self-funded 6 cycles.

Consider causes of female infertility

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Given the range of causes of fertility problems, the provision of appropriate investigations is critical.

• Investigations include assessment of ovulation, tubal damage and uterine abnormalities; and screening for infections such as Chlamydia trachomatis and susceptibility to rubella.

Once a diagnosis has been established, treatment falls into 3 main types:

- Medical treatment to restore fertility (for example, the use of drugs for ovulation induction)
- Surgical treatment to restore fertility (for example, laparoscopy for ablation of endometriosis)
- Assisted reproduction techniques (ART) any treatment that deals with means of conception other than vaginal intercourse. It frequently involves the handling of gametes or embryos

Ovulation problems in women

Not producing eggs (ovulating) is the cause of problems in about 3 in 10 couples. In some women this is a permanent problem. In some it only happens from time to time: some months ovulation occurs, and some months it doesn't. There are various causes of ovulation problems including:

- Early (premature) menopause.
- Polycystic ovary syndrome (PCOS). This can also cause excessive hair growth, acne, and period (menstrual) problems, and is associated with being overweight (obesity). See leaflet Polycystic Ovary Syndrome, from Patient Info UK for more detail: <u>https://patient.info/health/polycystic-ovary-syndrome-leaflet</u>
- Hormone problems for example, too much prolactin hormone. This hormone is produced by the pituitary gland that lies just beneath the brain and helps with milk production. Too little or too much thyroxine hormone (produced by the thyroid gland in the neck) also affects fertility.
- Being very underweight or overweight. This can affect your hormone balance which can affect ovulation. In particular, women with anorexia nervosa often do not ovulate.
- Excessive exercise (such as regular long-distance running) can affect your hormone balance which can affect ovulation.
- Long-term (chronic) illnesses. Some women with severe chronic illnesses, such as uncontrolled diabetes, cancers and kidney failure, may not ovulate.
- A side-effect from some medicines is a rare cause. Medicines that sometimes cause this include chemotherapy medicines.
- Some street drugs such as cannabis and cocaine can also affect your ability to ovulate.
- Various other problems with the ovary such as certain genetic problems. Genetic means that you are born with it and it is passed on through families through special codes inside cells called genes.

Fallopian tube, neck of the womb (cervix) or womb (uterine) problems

These are the cause in about 2 in 10 couples with infertility. Problems include:

- Endometriosis, which causes about 1 in 20 cases of infertility. See separate leaflet called Endometriosis for more detail. Tissue that normally lines the womb (uterus) called the endometrium is found outside the uterus. It is trapped in the pelvic area and can affect the ovaries, uterus, and nearby structures. It often causes lower tummy (abdominal) pain and/or painful periods.
- Previous infection of the uterus and Fallopian tubes (pelvic inflammatory disease (PID)) is another common cause. Chlamydial infection can be a cause of PID. PID can cause scarring and damage which can affect fertility. For example, scar tissue may block the egg (ovum) from travelling down the Fallopian tubes.
- Previous surgery to the Fallopian tubes, cervix or uterus.
- Large fibroids, which may also cause problems, although this is debated by some experts. A fibroid is a benign (non-cancerous) growth of the uterus.

Blood tests, cervical smear and chlamydia screening

Cervical cancer screening

To avoid delay in fertility treatment a specific enquiry about the timing and result of the most recent cervical smear test should be made to women who are concerned about their fertility.

Cervical screening should be offered in accordance with the national cervical screening programme guidance.

Screening for *Chlamydia trachomatis:* Before undergoing uterine instrumentation women should be offered screening for *Chlamydia trachomatis* using an appropriately sensitive technique.

- A cervical swab may be taken: rotate the swab for 360 degrees inside the cervical os. If the os is stenosed, swab the external os 360 degrees, and include vaginal secretions
- If a speculum examination is not possible then the following are acceptable:
 - A self-taken lower vaginal swab
 - A first-void urine sample. The urine should have been held in the bladder for at least an hour before the specimen is collected.
- If the result of a test for *Chlamydia trachomatis* is positive, women and their sexual partners should be referred for appropriate management with treatment and contact tracing.
- Prophylactic antibiotics should be considered before uterine instrumentation if screening has not been carried out.

Investigations

- Measure mid-luteal phase progesterone in all women to confirm ovulation: The sample should be taken 7 days before the expected period (day 21 in a 28-day cycle).
- The following additional tests may be needed:
 - In women with prolonged irregular menstrual cycles, depending on the timing of menstrual periods, serum progesterone may need to be measured later (e.g. on day 28 of a 35-day cycle) to confirm ovulation, and repeated weekly thereafter until the next menstrual cycle starts.
 - In women with irregular menstrual cycles, measure serum gonadotrophins (follicle-stimulating hormone and luteinizing hormone) which are of value in women with anovulation or oligo-ovulation. They can be used to identify <u>ovulation disorders</u>.
 - In women with symptoms of thyroid disease, perform thyroid function tests.
 - In women with an ovulatory disorder (for example PCOS), galactorrhoea, or a suspected pituitary tumour, measure prolactin

The following investigations are *not* recommended:

- Endometrial biopsy there is no evidence that medical treatment of luteal phase defects improves pregnancy rates.
- Basal body temperature charts they do not reliably predict ovulation.
- Use of ovulation predictor kits there is no evidence that attempts to time sexual intercourse to the menstrual cycle result in improved conception rates. Furthermore, there is evidence that the use of these kits causes stress.
 - Postcoital testing of cervical mucus has no predictive value for pregnancy rates

Additional information

- Mid-luteal phase progesterone levels:
 - Progesterone is released after luteinization of the follicle (as part of the ovulation process).
 - Ovulation can be confirmed retrospectively by measurement of serum progesterone in the mid-luteal phase, approximately on day 21 of a 28day cycle.
 - Consult your local laboratory regarding the lowest limit indicative of ovulation.
 - Gonadotrophin measurement:
 - This is of value in women with anovulation or oligo-ovulation. These disorders are estimated to cause 21% of female infertility.
 - Gonadotrophin measurement can be used to identify three groups of ovulation disorders (defined by the World Health
 - Organization):
 - Hypothalamic pituitary failure (group 1): characterized by low gonadotrophin, normal prolactin, and low oestrogen levels.
 - This group accounts for about 10% of ovulatory disorders.
 - Hypothalamic pituitary dysfunction (group 2): characterized by gonadotrophin disorder and a normal oestrogen level. This group accounts for about 85% of ovulatory disorders and includes polycystic ovaries.
 - Ovarian failure (group 3): characterized by high gonadotrophins and hypogonadism and a low oestrogen level. This group accounts for about 4–5% of ovulatory disorders.
- Prolactin measurement:
 - Hyperprolactinaemia is an endocrine disorder caused by increased prolactin secretion from the pituitary gland. This can result in galactorrhoea, irregular menstruation, and infertility.
 - The incidence of an increased prolactin level in infertile but ovulatory women ranges from 3.8–11.5%.
 - Prolactin measurement should be reserved for women with symptoms of an ovulatory disorder (e.g. polycystic ovary syndrome), galactorrhoea, or a pituitary tumour.
- Thyroid function tests:
 - Thyroid dysfunction can lead to menstrual and ovulatory disorders associated with infertility:
 - Abnormal thyroid function has been reported in 1.3–5.1% of infertile women.
 - Subclinical hypothyroidism has been estimated to occur in 0.88–11.3% of women with ovulation disorders.
- Chlamydial testing: a cervical swab may be taken: rotate the swab for 360 degrees inside the cervical os. If the os is stenosed, swab the external os 360 degrees, and include vaginal secretions. If a speculum examination is not possible then the following are acceptable:



• A self-taken lower vaginal swab.

• A first-void urine sample. The urine should have been held in the bladder for at least an hour before the specimen iscollected.



Investigations

Male	Female
Semen analysis Chlamydia screen	FSH LH Day 21 progesterone (if regular cycle), day 28 (if irregular) TFTs AMH Prolactin Testosterone is PCOS suspected Chlamydia serology Rubella serology



Consider causes of male infertility

Disorders of the testis and spermatogenesis

These may be structural or hormonal.

- Persistent azoospermia is incompatible with fertility: Whilst a low sperm count is a poor prognostic feature, and the lower the count the worse the prognosis, it is not totally incompatible with fertility.
- Klinefelter's syndrome with karyotype XXY is associated with hypogonadism and disorders of spermatogenesis.
- Cryptorchidism is often associated with testicular dysgenesis and is a risk factor for infertility.
 - Early orchidopexy (6-12 months of age) might be beneficial for testicular development in adulthood.
- Testicular feminisation is a condition in which there is resistance to the virilising effects of androgens, and a child with an XY karyotype appears as a girl: This can be much less complete and more limited resistance to androgens can lead to poor development of the testes.
- Testicular tumours are usually treated by orchidectomy, possibly followed by radiotherapy. Treatment of testicular cancer reduces fertility.
- The presence of varicocele in some men is associated with progressive testicular damage from adolescence onwards and a consequent reduction in fertility. However, although the treatment of varicocele in adolescents may be effective, there is a significant risk of over treatment.
 - Varicocele repair may be effective in men with subnormal semen analysis, a clinical varicocele and otherwise unexplained infertility.
- Trauma can cause testicular damage.
- Pituitary tumours will displace or destroy normal tissue and the production of follicle-stimulating hormone (FSH) and luteinising hormone (LH) is often the first to be affected.
- Panhypopituitarism (unrelated to pregnancy) is called Simmonds' disease.
- Hyperprolactinaemia must be severe ≥735 mU/L (usually due to a pituitary tumour) to have an effect on sexual function. It may impair sexual desire, testosterone production and erectile function.
 - The control of prolactin is unlike the other releasing factors in that it is controlled by an inhibiting rather than a releasing factor from the hypothalamus into the hypothalamic-pituitary portal circulation.
 - It is also released in response to thyrotropin-releasing factor, as is thyroid-stimulating hormone (TSH), and so it is elevated if thyroxine is low.
- The pituitary gland may be responsible for other disorders such as Cushing's disease.

Disorders of the genital tract:

- Failure of adequate differentiation of the embryonic testis can cause failure of proper development of the spermatic ducts.
- In vasectomy the objective is to interrupt the vas deferens and it may be possible to reunite this in an attempt to reverse the procedure, but the success rate as measured by successful pregnancy is poor.
- Congenital urogenital abnormalities such as hypospadias can cause problems. It tends to deposit the semen in the acid environment of the vagina rather than near the friendlier environment of the cervix.



Semen analysis (repeat in 6 weeks if abnormal) and chlamydia screening

Both partners should be screened for chlamydia

In the male, semen analysis in the only necessary initial investigation:

- The specimen should be produced by masturbation ejaculated into a clean, wide-mouthed container made of plastic from a batch that has been confirmed to be non-toxic for spermatozoa; and protected from extremes of temperature (below 20°C or above 37°C) (and not into a condom, as they contain spermatocides)
- The specimen should be collected after a minimum of 2 days and a maximum of 7 days of sexual abstinence.
- Prior arrangement with the laboratory may be necessary to ensure that they are able to deal with the specimen on the same day as collection.
- Ideally, the sample should be collected in a private room near the laboratory to avoid exposure of the semen sample to fluctuations in temperature and to control the time between collection and analysis.
- If the man, for any reason, must collect the sample at another place, the specimen container should be kept close to the body under the clothes (for example, in the armpit) during transport and should be delivered to the laboratory, preferably within 30 minutes after collection and at least no longer than 50 minutes after collection.
- Emphasize that the semen sample needs to be complete and that the man should report any loss of any fraction of the sample.
- Normal results based on WHO criteria are given below. Figures shown are lowest acceptable result (5th percentile) and 95% confidence limits in brackets:
 - Semen volume (mL): 1.5 (1.4-1.7)
 - Total sperm number (106 per ejaculation): 39 (33-46)
 - Sperm concentration (106 per mL): 15 (12-16)
 - Total motility (%): 40 (38-42)
 - Progressive motility (%): 32 (31-34)
 - Vitality (live spermatozoa, %): 58 (55-63)
 - Sperm morphology (normal forms, %): 4 (3.0-4.0)
- If the result of the first semen sample is normal, there is no need to do a repeat confirmatory test.
- If the result of the first semen sample is abnormal, order a repeat test: Repeat confirmatory tests should ideally be undertaken three months after the initial analysis, to allow time for the cycle of spermatozoa formation to be completed. However, if a gross spermatozoal deficiency (azoospermia or severe oligozoospermia) has been detected, the repeat test should be undertaken within 2-4 weeks. Additionally, if the male is very anxious, the test may be repeated sooner.
- After a second unsatisfactory result, the male should be referred to *urology for further investigation and secondary care fertility services*.

Do not offer screening for antisperm antibodies as there is no evidence of effective treatment to improve fertility Both partners should be screened for chlamydia



Reassessment and secondary care referral

- Assess and manage ovulation disorders appropriately and consider referral to secondary care at this stage
- Refer to secondary care for further investigations for suspected uterine and tubal abnormalities or abnormalities on semen analysis
- Refer for unexplained infertility if all hormonal profile and semen analysis normal

Possible indications for early referral include:

Female:

- Age > 35 years
- Amenorrhoea or oligomenorrhoea
- Previous abdominal or pelvic surgery
- Previous pelvic inflammatory disease
- Previous sexually transmitted infection
- Abnormal pelvic examination
- Known reason for infertility (e.g. prior treatment for cancer)

Male:

- Previous genital pathology
- Previous urogenital surgery
- Previous sexually transmitted infection
- Varicocele
- Significant systemic illness
- Abnormal genital examination
- Known reason for infertility (e.g. prior treatment for cancer)

For further information regarding IVF services offered by HWE ICB, please see policy: <u>Fertility treatment and referral criteria for tertiary level assisted conception (IVF/IUI)</u> (hweclinicalguidance.nhs.uk)



Consider Early Referral

Possible indications for early referral include: **Female:**

- Age > 35 years
- Amenorrhoea or oligomenorrhoea
- Previous abdominal or pelvic surgery
- Previous pelvic inflammatory disease
- Previous sexually transmitted infection
- Abnormal pelvic examination
- Known reason for infertility (e.g. prior treatment for cancer)

Male:

- Previous genital pathology
- Previous urogenital surgery
- Previous sexually transmitted infection
- Varicocele
- Significant systemic illness
- Abnormal genital examination
- Known reason for infertility (e.g. prior treatment for cancer)