

Fertility

Assessment and treatment for people with fertility problems

Clinical practice algorithm

February 2004

Developed by the National Collaborating Centre for
Women's and Children's Health

Assessment and treatment for people with fertility problems

Initial advice for people concerned about delays in conception:

- Cumulative probability of pregnancy in general population:
 - 84% in 1st year
 - 92% in 2nd year
- Fertility declines with a woman's age
- Lifestyle advice:
 - Sexual intercourse every 2-3 days
 - ≤ 1-2 units alcohol/week for women; ≤ 3-4 units/week for men
 - Smoking cessation programme for smokers
 - Body mass index of 19-29
 - Information about prescribed, over-the-counter and recreational drugs
 - Information about occupational hazards
- Offer preconceptional advice:
 - Folic acid
 - Rubella susceptibility and cervical screening

Infertility:

Failure to conceive after regular unprotected sexual intercourse for 2 years in the absence of known reproductive pathology
This guideline does not include the management of people who are outside this definition, such as those with sexual dysfunction, couples who are using contraception and couples outside the reproductive age range.

Early investigation if:

- History of predisposing factors (such as amenorrhoea, oligomenorrhoea, pelvic inflammatory disease or undescended testes); woman's age ≥ 35 yrs; people with HIV, hepatitis B and hepatitis C; prior treatment for cancer

People preparing for cancer treatment:

- Follow Royal College of Physicians and Royal College of Radiologists guidance
- Cryostorage of gametes and/or embryos

Principles of care:

- Couple-centred management
- Access to evidence-based information (verbal and written)
- Counselling from someone not directly involved in management of the couple's fertility problems
- Contact with fertility support groups
- Specialist teams

Clinical investigation of fertility problems and management strategies

For people who have not conceived after 1 year of regular unprotected sexual intercourse

Male

Semen analysis:

- Compare with WHO reference values:
 - ✓ Volume ≥ 2.0 ml
 - Liquefaction time within 60 minutes
 - pH ≥ 7.2
 - Sperm concentration ≥ 20 x 10⁶ per ml
 - Total sperm number ≥ 40 x 10⁶ spermatozoa per ejaculate
 - Motility ≥ 50% (grades a and b) or ≥ 25% with progressive motility (grade a) within 60 minutes of ejaculation
 - Vitality ≥ 75% live
 - White blood cells: < 10⁶ per ml
 - Morphology: 15% or 30%
- Screening for anti-sperm antibodies
- ✓ Ideally repeat after 3 months if abnormal or as soon as possible if gross sperm deficiency

If abnormal

Hypogonadotrophic hypogonadism:

- Gonadotrophins
- Obstructive azoospermia:
 - Surgery
 - Sperm recovery

Ejaculatory failure:

- Drug therapy
- Sperm recovery

If normal, see Unexplained infertility

Mild male factor fertility problems:

- Unstimulated intra-uterine insemination x 6 cycles

Varicoceles:

- Surgery

Female

Assessment of ovulation:

Check for frequency and regularity of menstrual cycles

If irregular:

- ✓ Day 21 serum progesterone if 28 day cycle or later in long cycle to confirm ovulation
- ✓ Serum gonadotrophins (FSH and LH)
- Serum prolactin unless galactorrhoea or pituitary tumour
- Inhibin B
- Thyroid function test unless symptoms of thyroid disease
- Endometrial biopsy

Irregular ovulation

If regular ovulation, see Unexplained infertility

WHO group I (hypothalamic pituitary failure):

- Gonadotrophins with LH activity or pulsatile GnRH

WHO group II (hypothalamic pituitary dysfunction, mainly polycystic ovary syndrome):

- Clomifene citrate* or tamoxifen* (up to 12 months if ovulating) with ultrasound monitoring during at least the first cycle to adjust dose
- If ovulating but not pregnant after 6 months: Offer clomifene citrate* plus intra-uterine insemination
- If no ovulation with clomifene citrate: Metformin plus clomifene citrate* or hMG*, uFSH* or rFSH* with ultrasound monitoring or Ovarian drilling

Hyperprolactinaemia:

- Bromocriptine
- * Risk of OHSS and multiple pregnancy

Tests for tubal occlusion:

The results of semen analysis and assessment of ovulation should be known before a test for tubal patency is performed.

- ✓ Screening for *Chlamydia trachomatis* before uterine examination or offer prophylactic antibiotics
- ✓ HSG/hysterosalpingo-contrast-ultrasonography if no history of co-morbidity (endometriosis/pelvic inflammatory disease/ectopic pregnancy)
- ✓ Laparoscopy and dye if history of co-morbidity

If occlusion

Consider in vitro fertilisation

- Tubal surgery if mild tubal disease
- Tubal catheterisation or cannulation if proximal occlusion

If normal

Unexplained fertility problems

- (Normal semen analysis, no ovulation disorders, no tubal occlusion):
 - Clomifene citrate
 - Unstimulated intra-uterine insemination x 6 cycles
 - Fallopiian sperm perfusion

Minimal/mild endometriosis:

- Surgical ablation or resection and adhesiolysis at laparoscopy

If no pregnancy:

- Stimulated intra-uterine insemination x 6 cycles with ultrasound monitoring with risk of OHSS and multiple pregnancy

Moderate/severe endometriosis:

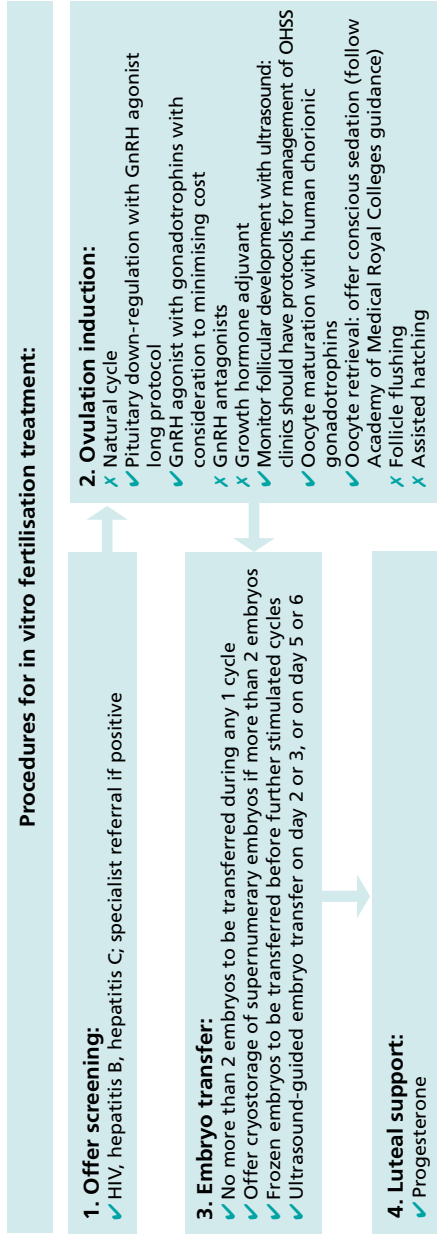
- Surgery
- Endometriomas: Laparoscopic cystectomy

If no pregnancy with azoospermia, bilateral tubal occlusion or 3 years' infertility and the woman is aged 23–39 years, offer up to 3 stimulated cycles of in vitro fertilisation treatment

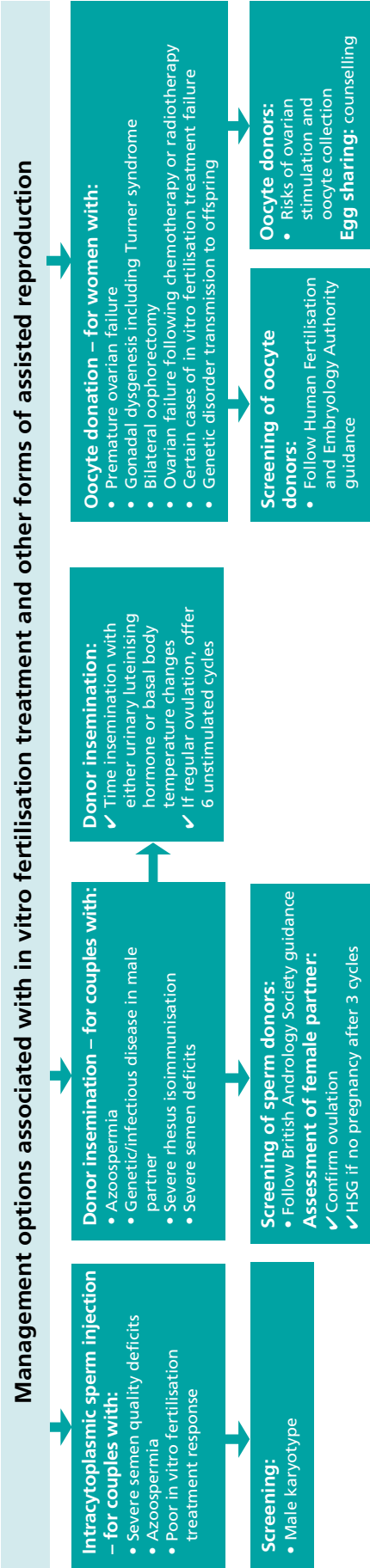
Additional principles of care for people undergoing in vitro fertilisation treatment:
 Access to evidence-based information (verbal and written) on risks/implications of assisted reproduction, including health of resulting children; genetic counselling; consideration of welfare of the child

Factors affecting the outcome of in vitro fertilisation treatment:

- Salpingectomy before in vitro fertilisation treatment for women with hydrosalpinges
- Optimal woman's age is 23–39 years at time of treatment
- Increased success with previous pregnancy and/or live birth
- Ideal body mass index is 19–30
- Increased success with low alcohol/caffeine intake
- Increased success in non-smokers
- Consistent for first 3 cycles of treatment, effectiveness after 3 cycles is uncertain



Women should be informed of the risks of OHSS and multiple pregnancy



This algorithm should, where necessary, be interpreted with reference to the full guideline

Key: FSH follicle-stimulating hormone; GnRH gonadotrophin-releasing hormone; HIV human immunodeficiency virus; hMG human menopausal gonadotrophin; HSG hysterosalpingography; LH luteinising hormone; OHSS ovarian hyperstimulation syndrome; rFSH recombinant FSH; uFSH urinary FSH; WHO World Health Organization

Clinical Guideline 11**Fertility**

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The algorithm on this poster forms part of the NICE guideline on fertility (see above). Copies of the NICE guideline can be obtained free of charge from the NICE website (www.nice.org.uk) and from the NHS Response Line (phone 0870 1555 455 and quote reference number N0465). A version for people who want to understand what NICE has told the NHS, called *Assessment and treatment for people with fertility problems*, is also available from the Response Line; quote reference number N0466 for an English only version and N0467 for an English and Welsh version.

Information on the full guideline produced by the National Collaborating Centre for Women's and Children's Health, from which the NICE guideline has been prepared, is given in Section 5 of the NICE guideline.

This guidance is written in the following context:

This guidance represents the view of the Institute, which was arrived at after careful consideration of the evidence available. Health professionals are expected to take it fully into account when exercising their clinical judgement. The guidance does not, however, override the individual responsibility of health professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

**National Institute for
Clinical Excellence**

MidCity Place
71 High Holborn
London
WC1V 6NA

www.nice.org.uk

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