

### DIAGNOSIS AND MANAGEMENT

#### The GP's role

- Do not wait before beginning assessments
- GPs can begin with simple, inexpensive and minimally invasive investigations
- Infertility needs to be assessed and managed as a couple, and may require several different specialists

#### Diagnosis

##### Brief assessment and pre-pregnancy advice

<b>Age</b> .....	What age is the couple?
<b>Fertility history</b> .....	How long have they been trying to conceive, and have they ever conceived previously (together/separately)? Do they have any idea why they have not been able to conceive?
<b>Contraception</b> .....	When it was ceased, and the likely speed of its reversibility
<b>Fertile times</b> .....	Whether the couple engage in regular intercourse during fertile times
<b>Female risk factors</b> .....	Aged 35+, irregular menstrual cycles, obesity, painful menses, or concomitant medical conditions
<b>Female health</b> .....	Screening for rubella immunity, pap smear, screening for chicken pox
<b>Lifestyle: female</b> .....	Diet, exercise, alcohol, smoking cessation and folate supplementation
<b>Lifestyle: male</b> .....	Smoking cessation

##### Reproductive history

###### Assess the male for:

<input type="checkbox"/> Prior paternity .....	Previous fertility
<input type="checkbox"/> Psychosexual issues (erectile, ejaculatory) .....	Interference with conception
<input type="checkbox"/> Pubertal development .....	Poor progression suggests underlying reproductive issue
<input type="checkbox"/> A history of undescended testes .....	Risk factor for infertility and testis cancer
<input type="checkbox"/> Previous genital infection (STI) or trauma .....	Risk for testis damage or obstructive azoospermia
<input type="checkbox"/> Symptoms of androgen deficiency (AD) .....	Indicative of hypogonadism
<input type="checkbox"/> Previous inguinal, genital or pelvic surgery .....	Testicular vascular impairments, damage to vasa, ejaculatory ducts, ejaculation mechanisms
<input type="checkbox"/> Medications, drug use .....	Transient or permanent damage to spermatogenesis
<input type="checkbox"/> General health (diet, exercise, smoking)	

###### Why?

##### Physical examination

###### GENERAL EXAMINATION

Acute/chronic illness, nutritional status

###### GENITAL EXAMINATION

↓ Refer to GP Summary Guide 1

###### DEGREE OF VIRILISATION

AD/47XXY

###### PROSTATE EXAMINATION

If history suggests prostatitis/STI

###### Testes

Small testes suggest spermatogenic failure

###### Presence of vas deferens

May be congenitally absent

###### Epididymides

Thickening or cysts may suggest previous infection and resultant obstructive problems

###### Varicoceles

Detected when standing, coughing or performing Valsalva maneuver

###### Penis

For abnormalities (e.g. Peyronie's) that may interfere with intercourse

## Investigations

**Semen analysis:** is the primary investigation for male infertility.

Key points:

- Men should abstain from sexual activity for 2–5 days before sample collection
- Two semen analyses should be performed at 6 week intervals. In men whose initial test is poor, the second test should ideally be performed in a specialised laboratory
- Semen analysis provides guidance to fertility; **it is not a direct test of fertility**. Fertility remains possible even in those with severe deficits

### Normal ranges for semen analysis (modified WHO, 1999)

Volume	≥2mL
pH	7.5-8.5
Sperm concentration	≥20 million/mL
Motility	≥50% motile within 60min of ejaculation
Vitality	≥50% or more live, i.e. excluding dye
White blood cells	<1 million/mL
Sperm antibodies	<50% motile sperm with binding

### Serum total testosterone:

- Testosterone is often normal 8-27nmol/L, even in men with significant spermatogenic defects
- Some men with severe testicular problems display a fall in testosterone levels and rise in serum LH, these men should undergo evaluation for AD
- The finding of low serum testosterone and low LH suggests a hypothalamic-pituitary problem e.g. prolactinoma (serum prolactin levels required)

### Serum FSH levels:

- Elevated levels are seen when spermatogenesis is poor (primary testicular failure)
- Normal men the upper reference value is approximately **8IU/L**
- Azoospermic man:
  - 14IU/L strongly suggests spermatogenic failure
  - 5IU/L suggests obstructive azoospermia but a testis biopsy may be required to confirm that diagnosis

### Specialised tests:

➔ Refer to GP Comprehensive Guide: Male Infertility

## Management

### Treatment options

**Protecting and preserving fertility:** mumps vaccination, sperm cryopreservation (prior to chemotherapy, vasectomy or androgen replacement), safe sex practices, and early surgical correction of undescended testes.

**Options for improving natural fertility:** exist for a minority of infertile men, including those with pituitary hormonal deficiency or hyperprolactinemia, genitourinary infection, erectile and psychosexual problems, and through the withdrawal of drugs. Evidence for varicocele removal to improve fertility is lacking.

**Assisted reproductive technologies (ART):** ART options range in cost and invasiveness:

- artificial insemination with men's sperm at midcycle
- conventional IVF
- intracytoplasmic sperm injection (ICSI) for severe male factor problems. Sperm can be readily obtained by testicular needle aspiration in the setting of obstructive azoospermia. Some azoospermic men with spermatogenic failure may have sperm recovered for ICSI from a testicular biopsy.

**Donor insemination:** for men with complete failure of sperm production.

## Specialist referral and long-term management

### When should I refer a patient to a specialist?

GPs can refer couples immediately or after a few months during which baseline tests are performed

### Referral to specialists will depend on the associated problem

- Endocrinologist (endocrine associated problems)
- Urologist (undescended testes, surgery)
- Fertility specialist/ART clinic

### Long-term management

of the infertile man includes assessing for late onset androgen deficiency, testis cancer

**Fertility Clinics:** a list of Australian ART Clinics, accredited by the Reproductive Technology Accreditation Committee are available via the Fertility Society of Australia website [www.fsa.au.com/apps/RTAC\\_Sites/centres.php](http://www.fsa.au.com/apps/RTAC_Sites/centres.php)

**Supporting the couple:** Acknowledge both partners' experience of infertility, and encourage couple communication  
Provide empathy and normalise feelings of grief and loss  
Refer on to a psychologist or counsellor if the couple require further support