

SITM: Management of Subfertility (MoS)

SECTION 1: CAPABILITIES IN PRACTICE

MoS CiP 1: The doctor recognises, assesses and investigates the infertile woman	
Key Skills	Descriptors
Assesses women with infertility	<ul style="list-style-type: none"> • Takes a detailed history, recording menarche, cycle regularity, past medical and obstetric history. • If cycle irregular asks additional questions including hirsutism, acne, alopecia, galactorrhoea, secondary sex characteristics, previous chemotherapy/pelvic radiotherapy. • Screens for associated conditions, e.g. autoimmune factors, genetic causes, diabetes mellitus, late onset congenital adrenal hyperplasia • Takes social and sexual history • Screens for previous infections eg chlamydia and gonorrhoea • Performs appropriate physical examination including BMI, secondary sex characteristics & vagino-rectal assessment for endometriosis if appropriate. • Assesses visual fields if appropriate.
Arranges appropriate endocrine and other investigations to make a diagnosis	<ul style="list-style-type: none"> • Arranges baseline investigations including luteal phase progesterone, Day 2 FSH, LH and estradiol & Rubella • Arranges endocrine investigations, if appropriate, including a baseline hormone profile of FSH, LH, Oestradiol, PRL, TFTs, androgens (testosterone, SHBG, FAI, DHEAS, androstenedione and 17αhydroxyprogesterone) and is able to interpret results appropriate • Organises and interprets appropriate investigations of impaired glucose tolerance and hypercholesterolaemia. • Takes vulvo-vaginal swabs • Discusses diagnostic techniques available for assessing tubal disease and uterine disease, any associated risks and complications. • Is able to carry out ultrasound scans of the pelvis in order to assess uterine shape and size, ovarian size and morphology • Is able to diagnose an endometrioma on a pelvic ultrasound scan. • Arranges and interprets HSG, HyCoSy and saline-infusion sonohysterography. • Appropriately organises and reviews the results of CT/MRI scan including MRI of the pituitary gland

	<ul style="list-style-type: none"> Establishes the likely cause(s) of infertility. Records results appropriately, including the need for referral and/or additional imaging.
<p>Makes a diagnosis of unexplained infertility</p>	<ul style="list-style-type: none"> Understand that it is a diagnosis of exclusion Explains diagnosis to patients
<p>Demonstrates understanding of association of other medical conditions and multidisciplinary</p>	<ul style="list-style-type: none"> Liaises with appropriate specialists for further management of associated medical conditions, such as diabetes with polycystic ovary syndrome, pituitary tumours with hypogonadotrophic hypogonadism. Advises the patient on lifestyle factors, being sympathetic to the difficulties overcoming lifestyle issues such as obesity. Is able to discuss long term effects and management of conditions such as PCOS and premature ovarian failure and arranges appropriate referral.
<p>Evidence to inform decision</p>	
<ul style="list-style-type: none"> CbD Mini-CEX: Local and Deanery Teaching RCOG e-learning NOTSS Reflective practice TO2 (including SO) 	<ul style="list-style-type: none"> OSATS: <ul style="list-style-type: none"> Ultrasound assessments of <ul style="list-style-type: none"> the normal pelvis including antral follicle count ovarian lesions uterine fibroids endometrial abnormality Monitoring ovarian stimulation Adnexal pathology HyCoSy or saline infusion sonohysterography HSG Hysteroscopic proximal tubal catheterisation Diagnostic laparoscopy and DYE test Confirmed attendance at specialist clinics such as menopause, endocrinology, reproductive endocrinology, ART and weight loss clinics; Attendance at RCOG/BFS ATM course, advanced hysteroscopy course
<p>Knowledge criteria</p>	
<ul style="list-style-type: none"> Physiology of ovulation and pathophysiology Female anatomy – abdomen and pelvis Scoring system for hirsutism Normal ultrasound appearance of uterus, ovaries and adnexae Standardised terms and definitions to describe sonographic features of normal pelvis and pelvic pathology 	

- Anatomical classification of ovulation disorders
- The association of other medical conditions with anovulation, such as diabetes with polycystic ovaries, pituitary tumours with hypogonadotropic hypogonadism
- The influence of lifestyle, including diet and weight, on anovulation
- The impact of psychiatric and psychological issues on anovulation
- The usefulness of initial screening investigations such as FSH, LH, antimüllerian hormone, prolactin, androgens (testosterone, SHBG, FAI), thyroid function tests, pelvic ultrasound (ovarian volume, antral follicle count); also follow-up investigations such as MRI, karyotype
- Aetiology of tubal factor infertility: infection, surgery, endometriosis, congenital abnormalities
- Classification of tubal disease relevant to natural and therapeutic prognosis
- Classification of uterine disease
- Aetiology of uterine factor infertility: infection, surgery, tumours, congenital abnormalities, intrauterine adhesions, fibroids, polyps
- Diagnostic techniques available for assessing uterine and tubal disease, any associated risks and complications
- Pathological features of acute and chronic inflammation associated with infertility
- Indications, pre-requisites and possible complications of HyCoSy, sonohysterography and HSG
- The hypotheses on the pathogenesis of endometriosis and mechanism by which endometriosis may have an impact on fertility
- Endometriosis classification systems, their usefulness and limitations
- The relationship between stages of endometriosis and infertility (defective folliculogenesis, ovulatory dysfunction, distorted pelvic anatomy, altered peritoneal function, autoimmune disorders, impaired implantation)
- The usefulness and limitations of MRI of the pelvis and abdomen
- The contribution of preoperative investigations, particularly CA125 and transvaginal ultrasound scan findings
- The epidemiology and natural history including prognosis for unexplained infertility
- An understanding of other investigations that could be carried out to arrive at a diagnosis of unexplained infertility and the scientific basis for them:
- Other suggested causes of infertility:
 - subtle ovulation defects
 - cervical mucus hostility
 - subclinical pregnancy loss
 - endometriosis
 - occult infection
 - sperm dysfunction
 - immunological causes
- Immunological screening
- Screening of high-risk groups

Key Skills	Descriptors
Takes relevant history and arranges relevant initial investigations to diagnose male factor infertility	<ul style="list-style-type: none"> • Arranges semen analysis and interprets results. • Understands the reasons for and timing of a repeat semen analysis and arranges appropriately. • Takes and interprets urethral swabs, and arranges for appropriate management of any abnormality, including referral to GUM clinics.
Performs physical examination to assess male reproductive system	<ul style="list-style-type: none"> • Uses an orchidometer to assess testicular volume. • Assesses the epididymis to detect any abnormalities. • Recognises varicocele, testicular tumours, undescended testicles, hypospadias, absence of vasa deferens, inguinal hernia.
Arranges further investigations to identify the cause of severe male factor infertility (azoospermia or severe oligospermia with a sperm density of < 5 million/ml)	<ul style="list-style-type: none"> • Arranges relevant further investigations: repeat semen analyses, urine for retrograde ejaculation, endocrine, microbiological, genetic (karyotype, CF screening, y chromosome microdeletions), scrotal & testicular ultrasound, testicular biopsy. • Reviews investigations and is able to differentiate pre-testicular, testicular and post-testicular causes of severe sperm abnormality.
Evidence to inform decision	
<ul style="list-style-type: none"> • Cbd • Mini-CEX • Reflective practice • TO2 (including SO) • Attendance at RCOG/BFS ATSM course • Local and Deanery Teaching 	<ul style="list-style-type: none"> • RCOG eLearning • Confirmed attendance at ART clinics and appropriate urology/andrology clinic • Exposure to specialist clinics: urology, GUM, endocrinology, clinical genetics, oncology • Observes surgical sperm retrieval (SSR) procedures • Observes vasectomy reversal
Knowledge criteria	
<ul style="list-style-type: none"> • The male reproductive system – anatomy, physiology and the process of spermatogenesis • The impact of male factors in the genesis of infertility • The environmental factors influencing male reproductive function • The endocrine disorders affecting male fertility • The effect of reproductive pathologies such as varicocele, undescended testicles, sexually transmitted infections such as chlamydia and gonorrhoea, previous orchitis, chemo-radiotherapy • The impact of previous surgery such as vasectomy, reversal of vasectomy, inguinal herniorrhaphy, orchidopexy • Coital dysfunction associated infertility • Y chromosome micro-deletion. To discuss sperm DNA damage, aneuploidy • Idiopathic male infertility • The availability of various advanced sperm function tests and their role in the management of male factor infertility 	

- Indications for vasectomy reversal
- The related aspects of male factor infertility, including the sequelae of long-term low testosterone levels and the association with testicular cancer
- Appropriate investigations for ejaculatory failure, impotence, retrograde ejaculation, genital infection, immunological causes, testicular maldescent, chromosomal abnormality, chemotherapy, radiotherapy, toxins (including drug effects)
- The causes of severe oligozoospermia (<5 million per ml) and azoospermia (pretesticular, testicular, post testicular)

MoS CiP 3: The doctor manages infertility

Key Skills	Descriptors
Communicates and formulates an appropriate plan for the management of infertility	<ul style="list-style-type: none"> • Explains the possible causes of infertility. • Formulates management plan related to pathological findings, taking into account relevant moral and ethical considerations. • Counsels the couple regarding the different treatment options available, taking into account their preferences and expectations. • Discusses treatment related complications and adverse effects. • Implements management plan and modifies treatment if necessary. • Manages coital dysfunction related infertility. • Arranges appropriate referrals to: urologist, endocrinologist, andrologist, clinical geneticist, psychosexual counsellor and IVF centre team.
Manages women with anovulatory dysfunction including PCOS	<ul style="list-style-type: none"> • Discusses potential consequences of expectant management. • Is able to diagnose and manage thyroid disorders and refer appropriately. • Explains treatment regimes of ovulation induction (anti-oestrogens and aromatase inhibitors), success rates (pregnancy rate and live birth rate), potential side effects of drugs and complications of procedures, including the risk of multiple pregnancy and ovarian hyperstimulation syndrome (OHSS) and the link with ovarian cancer. • Prescribes ovulation induction agents and progestogens for withdrawal bleed appropriately. • Provides appropriate treatment monitoring to assess effectiveness and minimise the risk of multiple pregnancy. • Provides appropriate advice for the management of a condition such as the risk of developing gestational diabetes in patients with polycystic ovary syndrome or the effects of medications in pregnancy.

	<ul style="list-style-type: none"> Recognises the influence of lifestyle, including diet and weight on anovulation and is able to advise the patient on lifestyle factors, being sympathetic to the difficulties overcoming lifestyle issues such as obesity with an understanding of long-term health risks, metabolic effects and cancer risks.
Manages women with tubal or uterine factor infertility	<ul style="list-style-type: none"> Discusses the impact of hydrosalpinx on natural fertility and assisted conception, including the role of salpingectomy. Discusses the impact of proximal tubal disease on natural fertility and the role of selective salpingography. Discusses with the patient the place of reversal of sterilisation. Performs effective and safe surgery where appropriate, and refers as necessary. Is able to decide when and on whom to operate for diagnosis or surgical management. Keeps accurate notes of operative procedures. Recognises the limitations of their operative laparoscopic, open and hysteroscopic surgery skills and, when appropriate, refers on to colleagues who have advanced laparoscopic skills.
Manages patients with endometriosis and infertility	<ul style="list-style-type: none"> Understands and is able to communicate which treatments for endometriosis will improve fertility, and is able to refer when appropriate. Is able to decide when and on whom to operate for diagnosis or surgical management. Keeps accurate notes of operative procedures. Refers on to colleagues who have advanced laparoscopic skills, when appropriate. Arranges referral to other specialists when appropriate (eg pain clinic, surgeons).
Manages male infertility	<ul style="list-style-type: none"> Explains the possible causes, treatment options, risks and benefits and the need for onward referral. Arranges appropriate referrals: urologist, endocrinologist, clinical geneticist, psychosexual counsellor, assisted conception. Is able to discuss the role of ART. Discusses role of donor sperm in ART.
Manages unexplained infertility	<ul style="list-style-type: none"> Explains the diagnosis. Discusses options with couple – to continue to try to conceive naturally, or to move to assisted reproduction techniques & timing of this. Advises on suitable therapeutic option, taking couples' wishes into consideration.

- Devises a care plan with the different treatment options, explaining the risks, benefits and alternatives.

Evidence to inform decision

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| <ul style="list-style-type: none"> • CbD • Mini-CEX • NOTSS • TO2 (including SO) • OSATS: <ul style="list-style-type: none"> ○ Operative hysteroscopy for polypectomy ○ Operative hysteroscopy for adhesiolysis or septal resection ○ Operative hysteroscopy for resection of submucous fibroids ○ Operative laparoscopy for salpingostomy ○ Operative laparoscopy for ovarian diathermy | <ul style="list-style-type: none"> • Reflective practice • Local and Deanery Teaching • RCOG Learning • Attendance at RCOG/BFS ATSM course |
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Knowledge criteria

- Treatment strategies, including:
 - anti-estrogens
 - aromatase inhibitors
 - anti-androgens
 - gonadotrophins
 - laparoscopic ovarian diathermy
 - dopamine agonists
 - steroids
 - insulin sensitisers
 - glitazones
 - artificial insemination
 - in vitro fertilisation
 - intracytoplasmic sperm injection
- The range of treatments for anovulation, including risks of multiple pregnancy and ovarian hyperstimulation syndrome (OHSS)
- The risks and sequelae of hypo-estrogenism, the risk and benefits of anti-estrogens, steroids, gonadotrophin analogues, dopamine inhibitors, laparoscopic ovarian diathermy
- Follicle tracking
- Hysteroscopic techniques, risks and the principles of safe use of energy sources
- The surgical options and alternatives for tubal and uterine factor infertility
- The place of adhesiolysis in the treatment of intrauterine adhesions
- Laparoscopy – role of
- Treatment options for uterine fibroids

- When a myomectomy is appropriate & the most appropriate way to do this
- Excision or occlusion of hydrosalpinges prior to IVF
- The success rates, limitations and risks of salpingostomy, proximal tubal blockage, adhesiolysis and metroplasty
- Management of intra- and postoperative complications of salpingostomy, surgery for proximal tubal blockage, adhesiolysis and metroplasty
- Knowledge of reversal of sterilisation: patients at risk, pregnancy rates and the place of reversal of sterilisation
- The benefits, risks and alternatives of empirical, non-pharmacological, medical and surgical methods of treating endometriosis
- The limits of hormonal treatment and surgery for endometriosis on fertility outcomes
- The place of assisted conception in unexplained, uterine and tubal factor infertility
- Intrauterine insemination and In vitro fertilisation
- The indications for SSR and vasectomy reversal
- The prerequisites and arrangements for SSR
- The principles of various SSR techniques (PESA, TESE, MESA and micro-TESE)
- Psychological factors in female infertility (e.g. amenorrhoea) and male infertility (e.g. erectile dysfunction)
- Effects of infertility upon the family
- The place of counselling in the management of the infertile couple
- Local facilities for counselling, self-help groups and community networks
- Local facilities for adoption.

MoS CiP 4: The doctor understands the principles of assisted reproduction techniques (ART) and their possible complications and can counsel patients effectively

Key Skills	Descriptors
Demonstrates understanding of psychological aspects of male and female factor subfertility and ART	<ul style="list-style-type: none"> • Recognises psychological factors in female (e.g. amenorrhoea) and male infertility (e.g. erectile dysfunction). • Demonstrates understanding of stress related to infertility, marital disharmony, and difficulties in having intercourse. • Discusses the effects of infertility upon the family. • Explains about the stress associated with ART. • Arranges appropriate referral to: counsellors, psychosexual medicine. • Discusses the role and value of counselling in the management of the infertile couple. <p>Have spoken to a fertility counsellor about their job role; understand the different types of counselling (support, implications, welfare of the child). Preferably have attended a fertility ethics committee meeting.</p>

Discusses pros and cons of different therapeutic options	<ul style="list-style-type: none"> • Clearly explains results of investigations. • Informs the couple of the chances of natural conception and with the different treatment options.
Decides when to proceed with therapeutic options	<ul style="list-style-type: none"> • Provides support for the couple if expectant treatment is the appropriate way forward. • Is aware of local fertility funding policies and national variation.
Preparation of patients for ART	<ul style="list-style-type: none"> • Ensures appropriate assessments are undertaken to confirm suitability for ART. • Selects patients appropriately. • Where necessary, arranges relevant further investigations in preparation for ART and interprets the results: <ul style="list-style-type: none"> ○ Endocrine including ovarian reserve tests ○ Virology screening to include HIV, Hep B and Hep C. Be aware of current guidance on timing (within 3 months of gamete donation) ○ Microbiological screening: chlamydia and gonorrhoea, ○ Genetic screening (karyotype, CF) • Assesses welfare of the child issues.
Decides and communicates the timing of assisted conception and recommends an appropriate assisted reproductive technology (ART) procedure	<ul style="list-style-type: none"> • Discusses suitable ART options. • Explains the role of ART and what an ART programme entails. • Discusses and recommends the most appropriate ART treatment according to cause of infertility, the results of the investigations and prognostic factors. • Explains the need for onward referral to an ART centre. • Discusses the benefits, risks, success and limitations of ART. • Is able to discuss the potential complications of ART, including OHSS, poor response, failed fertilisation, low fertilisation, multiple pregnancy, ectopic pregnancy, risk of infection and bleeding with oocyte retrieval procedure and the risk of genetic disorders after IVF/ICSI. • Explains the benefits of hydrosalpinx, fibroid, ovarian cyst (if any) treatment prior to assisted conception and associated risks. • Liaises with tertiary centres to arrange appropriate referrals for ART. • Undertakes trans-vaginal ultrasound scan for monitoring ovarian stimulation. • Discusses the role of pre-implantation testing. • Is able to discuss fertility preservation for individuals undergoing medical/surgical treatment affecting fertility and arranges appropriate referrals. • Is aware of local arrangements for fertility preservation categories (oncology, transitioning etc).

Diagnoses and manages ovarian hyperstimulation syndrome (OHSS)	<ul style="list-style-type: none"> • Discusses the risk factors for developing OHSS and strategies to minimise the risk of OHSS in an ART cycle. • Assesses the patient presenting with symptoms of OHSS, classifying according to severity. • Formulates management plan for OHSS (outpatient and inpatient). • Understands the complications of severe OHSS and the importance of multidisciplinary team management. • Advises on management in pregnancy for women who have had severe OHSS. • Be able to discuss subsequent treatment for women who have previously had severe OHSS.
Directs patients to information sites and patient support groups	<ul style="list-style-type: none"> • Discusses the role and value of self-help groups and community networks of support and arranges appropriate referrals. • Arranges appropriate referral to social services for adoption/fostering, local independent adoption societies.
HFEA Code of Practice	<ul style="list-style-type: none"> • Has read and understood the HFEA Code of Practice.
Evidence to inform decision	
<ul style="list-style-type: none"> • CbD to assess application of knowledge • Mini-CEX • Attend ART clinics • TO2 (including SO) • Reflective practice • Local and Deanery Teaching 	<ul style="list-style-type: none"> • Observe psychosexual medicine clinics or equivalent • RCOG eLearning • Attendance at RCOG/BFS ATSM course • OSATS: <ul style="list-style-type: none"> ○ Ultrasound monitoring of ovarian stimulation/follicle tracking scans
Knowledge criteria	
<ul style="list-style-type: none"> • The UK legal and regulatory aspects of fertility treatment • Clinical prognostic factors relevant in ART leading to appropriate patient selection (female age, duration of infertility, ovarian reserve, past reproductive history, pelvic organ abnormalities) • Stress associated with assisted conception treatment • Preparation of patients for assisted reproduction: hydrosalpinx, fibroids HIV, Hep B and Hep C screening; the place of counselling • How to assess the welfare of the child, including communication and consent • The Human Fertilisation & Embryology Authority (HFEA) and its role 	

SECTION 2: PROCEDURES

Procedures marked with * require three summative competent OSATS



Procedures	Level by end of training	CIP 1	CIP 3	CIP 4
Ultrasound assessment of:*	5	X		
○ Normal pelvis	5	X		
○ Ovarian lesions	5	X		
○ Uterine fibroids	5	X		
○ Endometrial abnormality	5	X		
○ Monitoring ovarian stimulation	5	X		X
○ Adnexal pathology	5	X		
Hysterosalpingography (HSG)	2	X		
HyCoSy or saline infusion sonohysterography*	5	X		
Operative hysteroscopy for polypectomy*	5		X	
Hysteroscopic proximal tubal catheterisation	3	X		
Operative hysteroscopy for resection of submucous fibroids	3		X	
Operative hysteroscopy for adhesiolysis or septal resection	3		X	
Operative laparoscopy for salpingostomy*	4		X	
Operative laparoscopy for ovarian diathermy*	5		X	

SECTION 3: GMC GENERIC PROFESSIONAL CAPABILITIES

Mapping to GPCs

- Domain 1: Professional values and behaviours
- Domain 2: Professional skills
 - Practical skills
 - Communication and interpersonal skills
 - Communication and interpersonal skills
 - Dealing with complexity and uncertainty
- Domain 3: Professional knowledge
 - Professional requirements
 - National legislative structure
 - The health service and healthcare system in the four countries
- Domain 5: Capabilities in leadership and team working
- Domain 6: Capabilities in patient safety and quality improvement
- Domain 8: Capabilities in education and training
- Domain 9: Capabilities in research and scholarship

SECTION 4: MAPPING OF ASSESSMENTS TO MoS CiPs



MoS CIP	OSATS	Mini-CEX	CbD	NOTSS	TO1/ TO2	Reflective practice
1: The doctor recognises, assesses and investigates the infertile woman	X	X	X	X	X	X
2: The doctor recognises, assesses and investigates the infertile male		X	X		X	X
3: The doctor manages infertility	X	X	X	X	X	X
4: The doctor understands the principles of assisted reproduction techniques (ART) and their possible complications and can counsel patients effectively.	X	X	X		X	X

SECTION 5: RESOURCES (OPTIONAL)

1. NICE guidelines in infertility www.nice.org.uk
2. HFEA documents www.hfea.gov.uk
3. ESHRE guidelines www.eshre.com
4. RCOG guidelines www.rcog.org.uk
5. Journals: Human Fertility, Human Reproduction, Fertility and Sterility, Journal of Andrology
6. Other relevant websites: www.bica.net www.fertilitynetworkuk.co.uk