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EXAMINATIONS & CREDENTIALS

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THE COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS OF SOUTH AFRICA

R E G U L A T I O N S

FOR ADMISSION TO THE EXAMINATION FOR THE

POST-SPECIALISATION

SUB-SPECIALTY CERTIFICATE
IN
REPRODUCTIVE MEDICINE
Cert Reproductive Medicine(SA)

1.0 BACKGROUND

1.1 The Council of the College of Obstetricians and Gynaecologists (COG(CMSA)) has recommended the registration of subspecialties in Obstetrics and Gynaecology to the Health Professions Council of South Africa. In doing so the Council has decided to advise and keep under review:

1.1.1 the development of subspecialisation in the four fields of gynaecological oncology, reproductive medicine, maternal and fetal medicine and urogynaecology, including requirements and regulations for subspecialist training and accreditation

1.1.2 the further development of training for special interest work within obstetrics and gynaecology

1.1.3 criteria and procedures for approval of subspecialty trainees, training centres and training programmes, and for subspecialist accreditation on completion of training

2.0 DEFINITION

2.1 Subspecialists are defined as obstetricians and gynaecologists who, having undertaken appropriate additional higher training, are recognised to have special expertise in the relevant field and who devote at least half, and probably more, of their working time to it. This higher degree of specialisation indicates intensive training, experience and expertise

The aims of subspecialisation are: -

2.1.1 to improve knowledge, practice, teaching and research

2.1.2 to promote the concentration of very specialised expertise, special facilities and clinical material that will be of considerable benefit to some patients

2.1.3 to establish a close understanding and working relationship with other disciplines involved in each of the subspecialty fields

2.1.4 to encourage co-ordinated management of relevant clinical services throughout a region

2.1.5 to accept a major regional responsibility for higher training, research and audit in the subspecialty fields

2.1.6 to improve the recruitment of talented graduates into the recognised subspecialties and into the specialty of obstetrics and gynaecology as a whole

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3.0 SUBSPECIALTY TRAINING

3.1 Subspecialist training posts will be at subspecialty trainee level, and more than one centre may provide the programme provided each is recognised by the HPCSA and the COG(CMSA) as a subspecialty training centre. The programme must include theoretical instruction (including the relevant basic sciences), intensive clinical experience in the subspecialty, and a research component is recommended but not required. Pre FCOG(SA) experience may be taken into account in planning the content of a subspecialty training programme, but will not usually be credited towards the clinical part of the programme.

3.2 The minimum requirement for entry into clinical subspecialty training is postgraduate training and qualification in Obstetrics and Gynaecology, eg MMed(O&G) or Part II FCOG(SA). Medical graduates who have obtained equivalent specialist training outside South Africa, who are registered as specialist in their own country and who wish to undertake subspecialty training and examination in South Africa, will have this taken into account on application to the COG. Such trainees who are successful in the examination, will receive the Certificate after completion and approval of training. Registration at the HPCSA as subspecialist in South Africa will be dependent upon their rules and regulations.

3.3 The minimum training time for the subspecialty Certificates is 2 years of full-time training or four years of part-time training. Clinical experience as a specialist registrar in the subspecialty or a closely related field may also be counted towards a maximum of six months of the programme, if approved by the COG. Satisfactory completion of one year of special interest training will usually allow six months exemption

3.4 Training at more than one centre is encouraged, but a minimum of 18 months full-time (or its equivalent in part-time) clinical training must be done at an approved subspecialty training programme in South Africa. Six months training at a unit not accredited by the HPCSA or outside South Africa can be allowed but must be approved by the relevant Subspecialty Committee and the Council of the COG. Prior approval is encouraged, but alternatively the Subspecialty Committee can grant approval for the purpose of examination. The Certificate is awarded after confirmation by the Council of the COG (CMSA) and completion of the training time but registration at the HPCSA will be dependent upon their rules and regulations.

3.5 The examination can also be allowed on application to the COG for candidates applying for subspecialty registration by the 'grandfather' clause at the HPCSA on the grounds of proof of sufficient training and experience in the field before the subspecialty was registered as such. Upon successfully completing the examination, the College will recommend registration for those candidates who can demonstrate sufficient experience.

4.0 GENERAL REQUIREMENTS FOR SUBSPECIALTY TRAINING CENTRES

4.1 Subspecialty training centres are approved by the HPCSA and registration depends among other factors on appropriate numbers of registered subspecialists (in new subspecialties also 'registerable' or 'recognised') to act as trainers and consultants. Staffing should be adequate to enable trainees to be engaged in the subspecialty field on a fulltime basis with supervision available

4.2 The COG (CMSA) also recommends that such units or centres should provide sufficient clinical workload to support the total number of trainees at speciality and subspecialty levels, provide a service for the referral and transfer of appropriate patients and provide a full range of services appropriate to the subspecialty, either alone or in collaboration

4.3 Training units must also:

4.3.1 work in collaboration with related disciplines to provide the high degree of teamwork, and in collaboration with other subspecialists within and outside the centre and country

4.3.2 have a programme director to co-ordinate and accept main responsibility for the training programme; each satellite or collaborating centre must also have a supervisor

4.3.3 have adequate library, laboratory and other resources to support subspecialty work, training and research

4.4 Participation in emergency or after-hour work is allowed and may be a prerequisite for some subspecialties

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5.0 SPECIAL REQUIREMENTS FOR TRAINING CENTRES IN REPRODUCTIVE MEDICINE

5.1 To be eligible for subspecialty training in reproductive medicine, the centre for reproductive medicine must be accredited for such training by the HPCSA, and must provide a service for the referral and transfer of patients with infertility and endocrine problems, including recurrent pregnancy loss, and menopause requiring special diagnostic and therapeutic facilities and expertise.

5.2 The unit must have an adequate clinical workload with a full range of gynaecological endocrine, fertility and infertility (female and male) problems.

5.3 It must be a referral centre with appropriate clinical facilities for the specialised investigation of the relevant endocrine, medical and infertility disorders, monitoring of women having ovulation induction and must have an established assisted conception programme, including assisted fertilisation with appropriate clinical and laboratory facilities.

5.4 The unit must provide training in laparoscopic and hysteroscopic surgery for investigation and treatment including ovarian biopsy and cystectomy, oophorectomy, treatment of ectopic pregnancy, adhesiolysis, salpingolysis, treatment of endometriosis, endometrial biopsy, removal of endometrial polyps, endometrial resection/ablation, hysteroscopic resection of fibroids.

5.5 The unit should participate actively in the investigation of male infertility and collaborate closely with consultant urologists/andrologists and their staff with commitments to the investigation and management of male infertility and have a close working relationship with established gamete donor programme.

5.6 The training unit should collaborate with consultant physician/endocrinologists and their supporting staff who have definite commitments to the care of endocrine disorders in women during the reproductive years of life including pregnancy and should provide an antenatal service to women with endocrine disorders eg thyroid disease, diabetes mellitus.

5.7 The unit must have access to an adequate gynaecological pathology service a have a research programme in the subspecialty field with access for the trainee to support his or her own training programme.

6.0 TRAINING IN THE SUBSPECIALTY OF REPRODUCTIVE MEDICINE

6.1 Definition:
Subspecialists in Reproductive Medicine should have a broad knowledge of reproductive, endocrine and fertility problems in women and fertility problems in men. They must be clinically competent in reproductive endocrinology and the surgery relevant to fertility in these disorders. They should be involved in basic and applied investigation in reproductive endocrinology and should be able to provide a consultancy service to other obstetricians/gynaecologists. They must have a working understanding of modern methods of assisted conception, including IVF and assisted fertilisation. In addition they must have knowledge of the management of endocrine disorders both in pregnant and non-pregnant women.

6.2 Training opportunities:
At the conclusion of subspecialty training, and as a prerequisite for obtaining a certificate, trainees must be able to demonstrate that they have fulfilled all the requirements of the training programme as described in detail in the Appendix to this document.

6.3 Clinical experience:
Candidates must also be able to demonstrate that they have been exposed to the necessary clinical cases and have obtained the needed clinical experience by completing the Logbook as in the Appendix.

6.4 Curriculum:
The level of knowledge expected at the end of training and which will be assessed is outlined in the Appendix.

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7.0 PRE-REQUISITES TO ENTRY INTO THE FINAL EXAMINATION

7.1 Candidates may enter the examination after a minimum of 18 months full-time or 3 years of part-time training at recognised centre; a certificate in a subspecialty of Obstetrics and Gynaecology will be awarded after all aspects of training has been completed and approved

7.2 Before being allowed to enter for the examination candidates must submit proof of completed training time and activities complying with the regulations at the time of entry into the examination. The completed portfolio of learning must reflect all of the candidate's academic and practical participation during the sub-specialty training. It must reach the Academic Registrar in Johannesburg before the dates published on the CMSA website.

7.3 The portfolio must contain proof of fulfilment of the rotation requirements and the logbook should reflect clinical activities and technical experience according to the respective subspecialty's prescriptions reflected under point 9 below. The heads of the respective training units must confirm validity by signing the document. The portfolio must be approved by the Convenor before entry is gained to the examination.

7.4 Candidates who fail the examination may enter the examination again on the basis of their original accepted portfolio.

7.5 All subspecialty trainees should take part in the research effort of the training unit. The assessment of the research project will be the responsibility of the relevant university if the candidate has registered for a university degree as well. Research outputs are not part of the portfolio and are not required for the Certificates. Research methodology remains part of the curriculum of all subspecialties and will be assessed during the clinical examination.

8.0 THE WRITTEN COMPONENT OF THE FINAL EXAMINATION

8.1 The exit examination consists of a written and a clinical component. The written component will count 40% of the final assessment and the clinical examination 60%.

8.2 The written examination paper will consist of two papers each consisting of three questions, with or without subdivisions to allow shorter and longer questions, to a total of 100 marks per question and 300 marks per paper. There should be a minimum of four and a maximum of nine questions or subdivisions per paper and some of these may be replaced by multiple choice questions. Candidates will have three hours to complete each paper.

8.3 Candidates writing the Certificate in Maternal and Foetal Examination must pass both papers with an average of 50% to be invited to the clinical examination. For all other subspecialties, the total mark needs to be 50% to be invited to the clinical examination, with a subminimum of 45% in each paper.

8.4 Marks are submitted to the convenor who calculates the final marks and share these with the moderator. The convenor will round up the final mark only. The Colleges of Medicine of South Africa (CMSA) receives the approved list of candidates who are invited for the clinical examinations.

8.5 A candidate who has been invited to the clinical examination and fails the oral aspect of the examination, shall automatically gain access to the clinical part of the examination without re-writing the written part. This exemption from the written part will be allowed only once for the next examination, after which the written part must be attempted again.

9.0 THE CLINICAL COMPONENT OF THE FINAL EXAMINATION

9.1 The clinical examination will count 60% of the final mark and consists of three parts: OSCE, OSPE and a discussion of the Portfolio and Research methodology.

9.2 The OSCE contributes 25% of the final mark and will consist of six to eight OSCE stations. Candidates will have eight to ten minutes to complete each OSCE station. The OSCE must be passed with an average mark of at least 50%.

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9.3 The OSPE contributes 25% of the final mark and will consist of four structured clinical OSPE cases. Candidates will have 20 minutes preparation time followed by 20 minutes examination time for each case. The structured clinical cases will emphasise clinical problem solving. The four OSPE cases must be passed with an average mark of at least 50%, provided no more than one case is failed.

9.4 Each candidate will have a discussion lasting 30 minutes on the portfolio during which also assessment of the understanding of research methodology is established. This evaluation will contribute 10% towards the final mark for the clinical examination.

9.5 The final mark will be weighted and calculated as follows:

Written examination	40%
Clinical Examination	60%
OSCE	25%
OSPE	25%
Portfolio	10%
Total	100%

9.6 The outcome of the examination (pass or fail) will be communicated to candidates after the examiner's meeting on the day of the clinical examination. Candidates must notice and will be informed that the marks are provisional, and the CMSA Senate must still ratify the marks. The CMSA will communicate the final marks to candidates

APPENDIX: CLINICAL TRAINING, LOGBOOK AND CURRICULUM

LOGBOOK:

1.0 REQUIRED CLINICAL EXPERTISE

Clinical training should include the following experience

1.1 Outpatients clinics:

- Infertility clinics: Attendance at 30 clinics
- Gynaecological endocrinology: Attendance at 40 clinics
- Menopause management:
  - attendance at a minimum of 25 clinics dedicated to the care of postmenopausal women
- Recurrent miscarriage:
  - the candidate should attend a minimum of 15 clinics concentrating on the management of women with recurrent miscarriage

Note: Some training institutions may not have dedicated clinics as outlined above. In this event a minimum of 110 clinics which focus on reproductive medicine must be attended and an outline of the experience obtained in infertility, gynaecological endocrinology, menopause management and recurrent miscarriage must be provided.

1.2 Contraception and Fertility Regulation:
During the 2 year training period at least 15 Family Planning clinics should be attended and should include experience in counselling for termination of pregnancy. This clinical experience should be certified as satisfactory by the supervisor in the portfolio and should include the insertion and removal of the IUCD and IUS and progestogen

1.3 Surgery

1.3.1 Endoscopic surgery:
The trainee should be competent to perform endoscopic surgery:

- Hysteroscopy: 30 basic hysteroscopies and 10 operative hysteroscopies must be recorded
- Laparoscopy: the candidate must be competent to perform basic diagnostic laparoscopy and to be able to stage disease utilising international assessment criteria. He/she should achieve basic competence at level III in endoscopic surgery and should have performed at least 20 laparoscopies involving tubal surgery, adhesiolysis or the management of endometriosis
- Competence in endoscopic surgery must be certified by a supervisor.

1.3.2 Tubal and other reproductive surgery:
The candidate should be competent to perform and have the following minimum numbers documented:
5 tubal re-anastomoses
10 myomectomies
10 cervical cerclages

1.3.3 Infertility Procedures:

- Ovulation induction cycles:
  - the candidate should have instituted and monitored a minimum of 50 ovulation induction cycles. These may include cycles utilising clomiphene citrate or gonadotrophins but should exclude all cycles for ART
- IVF cycles:
  The candidate should set up a minimum of 50 cycles
- At least 25 ovum pickups and 25 embryo transfers should have been performed
- The trainee must be able to plan, institute treatment, perform oocyte aspirations and embryo transfers for IVF
- Male infertility:
  - at least 15 cases of male infertility involving full assessment including clinical examination should be documented
- Intrauterine insemination.
  - At least 25 IUI cycles should have been instituted and conducted by the candidate

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1.4 Laboratory Procedures:

- A minimum of one month should be spent in the IVF (andrology and embryology) laboratory and candidates should understand how this laboratory runs and the quality control of this laboratory
- The trainee must spend a minimum of one month in an andrology laboratory and be able to do a basic semen analysis
- Biochemical/endocrine laboratories: Trainees are expected to have an understanding of the processes and quality control within the laboratory rather than practical experience

1.5 Other Procedures:

- The candidate should be able to insert hormonal or non-hormonal contraceptive implants (at least 5 cases each intra-uterine and subcutaneous).
- He/she should be competent to do basic endocrinological testing eg cortrosyn stimulation, betamethasone suppression. (Number of each to be recorded)

2.0 ASSESSMENT OF EXPERIENCE:

All candidates should be encouraged to complete a research project

3.0 PORTFOLIO

The specific details pertaining to the 'PORTFOLIO OF LEARNING' are in a separate document on the CMSA website and each candidate must be aware of its contents. In brief, the portfolio must reflect all of the candidate's academic and practical participation during the subspecialty training. The portfolio must be signed by the HOD or training centre HOD to confirm validity of the contents.

CURRICULUM AND CLINICAL TRAINING GUIDELINES

1.0 GUIDELINES TO LEARNING

These are guidelines and not an exhaustive outline of the knowledge required in this subspecialty

1.1 Endocrinology and Clinical pharmacology of hormones:
The trainee should understand and be able to discuss:

1.1.1 Absorption, excretion, distribution and biotransformation of drugs and hormones, showing knowledge of these mechanisms for transfer across membranes (eg placenta) and into breast milk, storage, metabolism, enzyme systems, renal, hepatic and fecal excretion;

1.1.2 Discuss general mechanisms of drug and hormone action including structure activity relationships, receptors and sites of action

1.1.3 Characterise drug and hormone effects, including dose-responses, biological variations, spectrum of effects and factors that modify effects (eg age, sex, body weight, route of administration, tolerance and drug or hormonal interactions), agonist and antagonist

1.1.4. Relate drug toxicity and hormone reaction to allergy, teratogenicity, dependence and addiction

1.1.5. Indicate governmental and pharmaceutical regulations pertaining to drugs and hormones and their developments

1.1.6. Understand the design analysis, and organisation of participation in clinical trials

1.1.7. Understand the toxicity of drugs, commonly used for management of reproductive and endocrine disorders including ovulation induction, treatment of endometriosis, hyperandroginism, induction of puberty, hormone replacement therapy and assisted reproduction

1.1.8. Understand the principles of Good Clinical Practice (GCP)

1.2 Pathology and Physiology:
The trainee should understand and be able to discuss the physiology and pathology of the systems listed below:

1.2.1 Vagina and cervix:
- the gross and microscopic findings of endometriosis and adenomyosis
- the possible consequences of antenatal hormone exposure
- the effects of various hormones on the vagina and cervix

1.2.2. Endometrium:
- histological appearance of normal and abnormal endometrium
- developmental stages of the endometrium (dating)
- implantation, the placenta and uterus in early pregnancy
- the current data relating oestrogen to endometrial hyperplasia and adenocarcinoma
- acute and chronic endometritis

1.2.3. Myometrium and fallopian tubes
- the gross and microscopic findings of normal myometrium and of adenomyosis, leiomyoma and other myometrial lesions related to reproduction
- the relationship of leiomyoma to infertility including each of the different types (eg subserosal, intramural and submucosal)
- Fallopian tubes: the gross and microscopic findings of diseases of the oviduct related to reproductive endocrinology (eg acute and chronic salpingitis, granulomatous salpingitis and endometriosis)
- the natural history and clinical course of acute and chronic salpingitis and relate these to subsequent infertility

1.2.4. Ovary:
- the gross and microscopic findings and describe the natural history of ovarian tumours related to reproductive function (eg follicular cysts, luteoma, corpus luteum, polycystic ovary syndrome, endometrioma, granulosa-theca cell tumour, Sertoli-Leydig cell tumour, gynandroblastoma, cystic teratoma, dysgerminoma, gonadoblastoma and mixed germ cell or gonadal tumours)
- the different compartments of the Graafian follicle (eg granulosa cells, theca and adjacent stroma) and understanding of the primordial, preantral, antral and Graafian follicles, including the dynamic changes which occur in the ovary from embryo to menopause
- specific staining techniques and cellular ultrastructure as related to function
- the gross and microscopic findings and the development of gonadal structures found in various forms of gonadal dysgenesis and intersex conditions

1.2.5 Hypothalamus-CNS:
- the effects of organic and functional disturbance of the hypothalamus and CNS on endocrine and reproductive function

1.2.6 Pituitary:
- cellular morphology of normal and neoplastic cells of the adenohypophysis
- the effect of organic and functional disturbance of the pituitary on endocrine and reproductive function
- the function of the anterior and posterior pituitary

1.2.7 Testis:
- he various stages of normal and abnormal spermatogenesis
- the gross and microscopic findings in testicular disease (eg teratoma, seminoma, Sertoli-Leydig cell tumours)

1.2.8 Thyroid/adrenal:
- the normal thyroid structures and the various thyroid lesions associated with altered reproductive endocrine function (eg Graves disease, thyroiditis, neoplasia)
- the normal adrenal structures and the various adrenal lesions associated with altered reproductive endocrine functions (eg hyperplasia, adenoma, carcinoma, pheochromocytoma)

1.3. Immunologv:

The trainee should understand and be able to discuss:
- the essentials of basic immunology
- the usefulness and limitations of immunological tests in reproductive medicine (eg recurrent miscarriage and infertility).
- the pathophysiology of autoimmune disease in gonadal failure and other endocrine dysfunction, including the autoimmune aspects of gonadal dysgenesis
- the developing knowledge of immunology in contraception, including vaccination against conception
- the effect of active and passive immunisation on changes in hormone specific target tissues
- the clinical features and interactions of autoimmune endocrinological disease (eg of thyroid, adrenal, gonad)
- the immunological mechanisms proposed to underlie successful and unsuccessful implantation

1.4. Embryology:

The trainee should understand and be able to discuss:
- the normal embryonic development of the genital tract including the factors controlling male and female development of the gonadal primordia, internal duct system and external genitalia
- abnormal development of the genital tract
- how patients with developmental abnormalities of the genital tract including ambiguous genitalia, imperforate hymen and vaginal septa, uterine anomalies, Müllerian agenesis and gonadal dysgenesis should be diagnosed and managed
- the embryology of the hypothalamic-pituitary-gonadal axis and other pertinent endocrine systems
- the embryology of the urological system
- the various stages of oocyte and sperm maturation and of fertilisation
- pre-implantation development of human embryo in vitro and in vivo

1.5. Genetics:

The trainee should understand and be able to discuss:
- normal genetics (eg Mendelian inheritance, the structure and identification of chromosomes and gametogenesis)
- abnormal genetics including chromosome abnormalities and genetically transmitted disorders of sexual development (eg ova-testicular DSD Turners syndrome)
- inherited, non-reproductive disorders referable to reproduction (eg congenital adrenal hyperplasia, diabetes mellitus)
- genetic studies including pedigree, karyotype analysis, antenatal diagnosis of genetic disease, including use of gene probes and associated techniques; indications and arrangements for specialised genetic diagnosis and counselling
- inherited causes of infertility and early pregnancy loss
- genetic aspects of male infertility, artificial insemination and assisted fertilisation
- techniques, methods and implications of preimplantation genetic diagnosis
- Genome Wide Association studies (GWAS)

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1.6. Anatomy, physiology and pathophysiology as related to Reproductive Medicine:
The trainee should understand and be able to discuss the anatomy and physiology related to Reproductive Medicine. The trainee should also have a clear understanding of the pathophysiology of common disorders which impact reproductive health and result in affected women requiring investigation and treatment.

1.7 Neuroendocrine function of the CNS-hypothalamic-pituitary system and disease states:
The trainee should understand and be able to discuss:
- anatomical-functiona1 aspects of the hypothalamus, neurovascular relationships, hypothalamic-pituitary portal circulation and target cells of the pituitary
- suprahypothalamic structures and neuronal systems relevant to regulation of reproductive processes
- the site of production, biological action and control of secretion of oxytocin, vasopressins and neurophysins
- biochemical basis of neuroendocrine action and neuropharmacology of agonists and antagonists
- the pineal gland: the blood brain barrier
- sex steroid concentrating neurones
- distribution and cellular characteristics of pituitary hormone producing cells with special reference to gonadotrophs and lactotrophs
- anatomical and functional aspects of the peptidergic and catecholaminergic system and their control of pituitary hormone secretion
- structure and function of pituitary reproductive hormones and neuropeptides
- control of secretory activities of the pituitary hormones, including long and short-term rhythms, and their target organs and feedback systems
- neuroendocrine regulation of the menstrual cycle
- neuroendocrine function of the fetus and placenta
- hypothalamic dysfunction and hypopituitarism and disorders of over secretion of pituitary hormones
- organic lesions and/or functional disorders of the hypothalamic-pituitary system
- ectopic hormone syndromes

1.8 Ovarian function and disease states:
The trainee should understand and be able to discuss:
- cyclic changes in endocrine activities within the ovary
- synthesis and secretion of hormone substances by the various compartments and cell types of the ovary, intra and extra ovarian control mechanisms
- mechanism of protein/steroid hormone action in the ovary
- regulation of hormone receptors
- process of recruitment, selection and dominance as well as atresia and apoptosis
- luteolysis
- hormone producing tumours of the ovary
- ovarian activity during gestation
- age-related changes in ovarian structure and function
- clinical and pathophysiological correlates of disorders of the human ovary (structure and function) including the polycystic ovary syndrome, hyperthecosis and streak gonads

1.9 Thyroid function and disease states:
The trainee should understand and be able to discuss:
- TRH-TSH-thyroid physiology
- the diagnostic values of TSH, thyroid hormones total and free, thyroid stimulating immunoglobulins and related diagnostic tests
- the biosynthesis, control and metabolism of thyroid hormones
- the clinical and pathophysiological correlates of hypo- and hyperthyroidism, particularly as related to menstrual disorders and fertility
- pregnancy and hormone induced changes of thyroid function in the mother and the effect of abnormal maternal thyroid function on the fetus
- screening procedures in pregnancy

• thyroid physiology…/

- thyroid physiology in the newborn. Identification of cases at high risk of neonatal thyrotoxicosis or hypothyroidism
- the effects of thyroid replacement and anti-thyroid drug therapy on the fetus
- pathophysiology of thyroiditis
- thyroid function in struma ovarii, molar pregnancy and choriocarcinoma
- medical and surgical management of non-toxic goitre, hypo- and hyperthyroidism

1.10 Adrenal Function and Disease States:

The trainee should understand and be able to discuss:

- regulation and secretion of adrenocortical hormones
- clinical and laboratory assessment of adrenocortical function
- pharmacology of naturally occurring and synthetic glucocorticoids and mineralocorticoids
- adrenocortical hypo- and hyperactivity (eg Cushing's syndrome/disease, adenoma, carcinomas, Addison's disease)
- congenital adrenal hyperplasia (see Genetics) with emphasis on the different enzyme abnormalities
- effects of aberrations of adrenocorticortical function on hypothalamo-pituitary- ovarian function
- aldosterone and disorders of the renin-angiotensin system
- catecholamine disorders

1.11 Androgen Disorders:

The trainee should understand and be able to discuss:

- production, physiology and metabolism of androgens in normal women and describe the mechanisms of action of androgens
- the symptoms and signs of androgen excess together with any causes based on pathophysiology of androgen excess
- the physiology of normal and abnormal hair growth
- ovarian tumours, benign and malignant, which secrete androgens
- benign stromal changes in the ovary which may result in increased androgen production
- other origins of hyperandrogenism
- an understanding of the polycystic ovary syndrome and abnormal hormone production
- androgen resistant states and abnormalities of production eg 5□ reductase deficiency
- congenital and acquired adrenal hyperplasia in terms of aetiology, genital morphology, general metabolic effects and differentiate action and treatment
- the management of androgen excess and of the clinical manifestations of hyperandrogenism
- the pharmacology of anti-androgens
- androgen production and its control in the testis

1.12 Disorders of menstruation:

The trainee should understand and be able to discuss:

- endocrine criteria of the normal menstrual cycle. Understand the effects of sex steroids and other hormones on the endometrium
- the local endometrial environment and control
- the effects of steroids in relation to proliferation of the endometrium, secretory changes, and menstruation, including spiral arteriolar change, lysosome stability and fibrinolysis
- the pathophysiology of disorders of menstruation
- anovulation and the resultant hormonal changes indicating any effect on the endometrium, including endometrial hyperplasia
- assessment including methods of quantitating menstrual blood loss and undertake the medical and surgical treatment of patients with abnormal menstrual bleeding
- management of non-gynaecological causes of abnormal bleeding (eg hypothyroidism, blood dyscrasias and anti-coagulants)
- therapeutic choices for disorders of menstruation.

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1.13 Amenorrhoea and the menopause:

The trainee should understand and be able to discuss:

- pathophysiology of amenorrhoea, including nutritional and psychological aspects
- structural abnormalities of the genital tract associated with amenorrhoea.
- discuss amenorrhoea in relation to puberty and menarche
- the clinical manifestations of conditions associated with amenorrhoea (eg polycystic ovary syndrome, hypopituitarism, gonadal dysgenesis)
- the physiology and pathophysiology of prolactin secretion. The management of patients with inappropriate prolactin secretion
- the techniques for the evaluation and therapy of patients who require ovulation induction
- the interpretation of tests used to evaluate amenorrhoea
- a rational diagnostic and therapeutic approach to patients with amenorrhoea

1.14 Puberty:

The trainee should understand and be able to discuss:

- the normal sequence of pubertal changes in the female and male and their chronology
- the effects of hormones on bone growth and epiphyseal closure
- the hormonal changes and gametogenesis relative to the reproductive cycle from intrauterine life to the development of normal reproductive cycles (eg gonadotropin secretion in the fetus and the neonate)
- sensitivity of the feedback system during fetal and neonatal life and childhood; the role of adrenal androgens
- delayed puberty and delayed menarche including the differential diagnosis evaluation and appropriate therapy
- precocious puberty including the differential diagnosis, evaluation and appropriate therapy

1.15 Menopause and premature ovarian insufficiency: (POI):

The trainee should understand and be able to discuss:

- the physiology of the menopause
- causes and pathophysiology of premature ovarian failure including investigations and management
- the concept and investigation of ovarian reserve
- the treatment options for younger women with ovarian failure with particular regard to fertility
- the advantages and disadvantages of hormone replacement therapy
- how to manage the health of post-reproductive women.

1.16 Infertility:

1.16.1 Female:

The trainee should be able to:

- Take an appropriate history and examine the woman
- Evaluate, describe, diagnosis and plan therapy for:
  - Ovulatory disorders: including use of basal body temperature, plasma progesterone and endometrial biopsy, diagnosis of causes of anovulation, syndromes of inappropriate prolactin secretion, CNS-hypothalamic-pituitary syndromes and other causes, selection of ovulation induction utilising anti-oestrogens, gonadotropins, dopamine agonists, GnRH, GnRH analogues and other agents
  - Tubal disorders: including correct use of and interpretation of studies of tubal function (eg ultrasound, hysterosalpingography and laparoscopy), indications for tubal reparative procedures including micro-surgery/or laparoscopic surgery, versus assisted conception
  - Endometriosis and other peritoneal disorders: including diagnosis and staging of endometriosis and other peritoneal causes of infertility, knowledge of the medical management of endometriosis
- Cervical factors: including tests for sperm/cervical mucus interaction and possible therapy
- Artificial insemination including the indications and contra indications, selection of donors and sperm banking
- Ovum donation: indications, recruitment, counselling and methods for preparation of donors and recipients

- Adoption…/

- Adoption: including the indications for adoption, knowledge of appropriate counselling methods, familiarity with various local agencies and legal implications dealing with adoption
- Surrogacy: indications, knowledge of appropriate counselling methods and legal implications of surrogacy

1.16.2 Male:

The trainee should be able to take an appropriate history and examine the man, including detailed genital examination and arrange/perform appropriate investigations and treatment. The trainee should understand and be able to discuss:

- the formation and content as well as examination of the seminal fluid
- the cycle of spermatogenesis, including endocrinological control mechanisms, its abnormalities and the effects of drugs
- the physiology and pathophysiology of sexual function
- causes of azoospermia and aspermia
- the biosynthesis of oestrogens, androgens and progestogens by the human testis and the biological action of testosterone in man
- investigation, diagnosis and therapy of infection of the male reproductive system
- cryobiology of semen, counselling of donors and recipients of DI, sperm banking
- in vitro and laboratory tests of sperm function eg mucus penetration, zona free hamster egg penetration, biochemistry etc
- the value and limitations of testicular biopsy and endocrine assessment such as plasma FSH
- vasography
- physiology of endocrine and gametogenic function of the testes and accessory glands
- indications and methods of assisted fertilisation, including intracytoplasmic sperm injection
- methods of surgical sperm retrieval
- ICSI

1.16.3 Assisted reproductive technologies: (see also 8.22)

The trainee should understand and be able to discuss:

- all aspects of assisted reproductive technology including IVF, GIFT, ICSI
- laboratory aspects of management and quality control

1.17 Psychosexual aspects of reproductive medicine:

The trainee should understand and be able to discuss:

- the psychodynamics of growth and development, puberty and the establishment of the gender role
- antenatal hormone influence on subsequent behaviour and psychological function
- psychological factors in amenorrheoa
- psychological changes associated with treatment of infertility
- psychological changes associated with hormonal therapy
- psychological and endocrine factors associated with the premenstrual syndrome
- psychological and endocrine factors associated with the menopause
- effects of infertility upon the family
- general concepts of normal and abnormal sexual function and gender and awareness of local facilities for counselling
- gender reassignment

1.18 Endocrinology of pregnancy:

The trainee should understand and be able to discuss:

- the feto-placental unit as it relates to the physiology and pathophysiology of steroid hormones (eg oestrogen, progesterone, corticosteroids)
- physiology of decidua-chorionic-placental peptide hormones (eg gonadotropins human placental lactogen thyrotropin, ACTH/opioid peptides and prolactin)
- physiology, pathophysiology and pharmacology of prostaglandins
- the physiology of fetal adrenal gland
- the pathophysiology of altered maternal thyroid, adrenal and pancreatic status during pregnancy
- endocrine mechanisms contributing to the successful and unsuccessful implantation

1.19…/

1.19 Clinical diagnostic techniques and imaging:
The trainee should:

- be competent in operative procedures, including biopsies of the vagina, cervix and endometrium, cytological studies, endoscopy with dye instillation and endoscopic biopsy, laparotomy, with biopsy, diagnostic laparoscopy, hysteroscopy and other intra-abdominal diagnostic techniques
- Understand and be able to interpret: hysterosalpingography, sella turcica imaging by MRI or CT arteriography, computerised tomography, arterial catheterisation, digital subtraction angiography, venous catheterisation; intravenous and retrograde urography and isotope imaging methods as applied in Reproductive Medicine
- understand the endocrinological measurement of hormonal substances in biological fluids for evaluation of the various endocrine systems including the hypothalamus, pituitary, parathyroid, thyroid, adrenal and gonadal systems as well as assessment in pregnancy
- be able to perform and interpret dynamic endocrinological testing of these systems
- be able appropriately to utilise and interpret chromosomal studies and karyotyping

The trainee should be competent in the following ultrasound skills:

  - Appearance of normal and abnormal uterus including fibroids. Endometrial assessment including normal cyclical changes, changes associated with hormone replacement, hyperplasia and malignancy
  - assessment of ovarian, parovarian and tubal masses
  - tracking of folliculogenesis and formation and disappearance of corpus luteum
  - use of ultrasound for assessment of tubal patency using contrast media, confirmation of intrauterine gestational sac with embryo, yolk sac, cardiac pulsation
  - diagnosis of ectopic pregnancy
  - assessment of gestational age
  - assessment of cervical length and dilation

- understand the risks and limitations of procedures, diagnosis and evaluation of diagnostic procedures, understanding the validity of diagnostic tests, variability and reliability criteria
- understand the need for clinical record keeping and data storage including use of photography
- the trainee should have seen in clinical practise and understand the implications of the results for management and be able to discuss:
  - nuclear magnetic resonance
  - bone densitometry.

1.20 Surgical techniques:
The trainee should be competent of independent practice in:

- fertility control: including laparoscopy and laparotomy techniques; reversal of sterilisation
- diagnostic techniques: including hysterosalpingography and endoscopy
  (see clinical diagnostic techniques and imaging)
- infertility surgery: including:
- uterus – septate uterus, myomectomy, lysis of uterine synechiae
- fallopian tube - reparative techniques for tubal and/or adhesive pelvic disease
- ovaries - cystectomy and reconstruction, ovarian diathermy/laser drilling
- endometriosis - staging, surgical therapy
- the use of endoscopic surgery in the treatment of the above conditions
- management of imperforate hymen and vaginal septa
- the management of complications: including the incidence and the prevention and other therapeutic measures for immediate and late complications of reproductive and infertility surgery
  - The trainee should understand:
- developmental disorders: including those of:
  - Vagina: vaginal reconstruction by dilatation or surgery
  - Uterus: knowledge of Müllerian anomalies with obstruction of drainage
- Ambiguous genitalia: including involvement in the assignment of sex of rearing for an infant with ambiguous genitalia, techniques for surgical construction of unambiguous functioning female external genitalia and vagina (eg vaginoplasty, clitoridectomy and clitoral resection), indications and techniques for gonadectomy

•The trainee…/3

- The trainee should join the subspecialist programme having completed Level 1 of the WInners programme which can be done online.
- The trainee should complete Level 2 assessment in the WInners programme before attempting the Certificate examination. This should be documented in the logbook/portfolio

1.21 Contraception and termination of pregnancy (TOP):
The trainee should understand and be able to discuss:
- the pharmacodynamics, metabolic effects and complications of the various oral and injectable contraceptive preparations
- the mechanism of action and complications in intrauterine contraceptive devices and systems (eg inert, copper and progestogen containing)
- emergency contraception including available methods and mode of action
- the indications, advantages, disadvantages, side effects, complications, and efficacy of traditional contraceptive methods (eg barrier, vaginal spermicide and periodic abstinence) as compared to non-utilisation of contraceptives
- male contraception and sterilisation (see also Infertility - Male)
- female sterilisation (see also Infertility – Female and Surgical Techniques)
- interruption of pregnancy, including: techniques of estimation of gestational age, the various techniques of pregnancy interruption eg emergency contraception, menstrual extraction, medically induced TOP, dilatation and evacuation, mid-trimester TOP with prostaglandins and other agents and details of the possible hazards and long-term fertility complications of such procedures
- Medical Eligibility Criteria published by WHO

1.22 In-vitro fertilisation (IVF) and other assisted reproduction techniques:
The trainee should be competent for independent clinical practice in:
- conditions for which IVF and related techniques of assisted reproduction are appropriate
- determination of the menstrual cycle to plan synchronisation for oocyte donation
- follicular stimulation and monitoring by ultrasound, steroid and peptide assays
- the timing of oocyte aspiration, laparoscopic, and ultrasound based procedures
- in vitro gamete transport, maturation and fertilisation
- surgical and non-surgical methods of sperm retrieval and their use in assisted fertilisation
- timing and methods of embryo transfer
- monitoring of implantation
- assessment of genetic abnormalities and their potential treatment
- relevant aspects of cryobiology
- psychological assessment and management of gamete donors and recipients

1.23 Laboratory based training:
The trainee should understand and be able to discuss:
- Tissue and cell structure:
  - biochemical methodology including extraction, purification and identification of steroid and protein hormones (eg steroids, proteins, receptors – membrane bound, including cyclic AMP generation and cytosol receptors, bioassays, steroid metabolism, prostaglandins, GnRH, peptides, adrenaline, thyroxine etc)
  - enzyme kinetics as they relate to steroid and protein metabolism
  - kinetics of production, distribution, conversion and metabolism of specific hormones
  - basic molecular biology techniques, including oligonucleotide probes, in situ hybridisation, Southern, Western and Northern blotting, restriction fragment length polymorphism, polymerase chain reaction
  - national and local regulations related to laboratory safety, animal and human experimentation, radiation hazards etc
  - quality control in laboratories

1.24…/

1.24 Epidemiology, research, statistics and audit:
The trainee should be able to:
- understand epidemiological techniques (eg cohort studies and case control studies, cumulative rate calculation and assessment of bias)
- understand population parameters and sampling techniques
- compute and interpret measures of comparisons of means and variations
- understand randomised controlled trials and techniques of meta-analysis
- analyse a presented experiment and construct a hypothetical experiment with respect to the following:
  - the question examined
  - the hypothesis
  - the sampling technique (including sampling bias and sample calculations
  - the expression and correlation of raw data and simple (eg log) transformations
  - the selection and application of appropriate statistical tests
  - significance of the results
  - the conclusions
  - the appropriate inferences which can be obtained
- Apply the following statistical tests:
  - parametric tests such as unpaired, paired, "t" tests, analysis of variance
  - non-parametric tests
  - correlation and regression
  - multi-variate analysis
  - chi-square analysis
- define the terms "significance", "confidence interval", "Type I error" and "Type II error"
- perform statistical analysis of assay data and evaluation of quality control
- understand the value of discussion and collaboration with statistical advisers
- understand disease surveillance systems and disease registries
- understand the need for organisation of and implementation of screening programmes
- the trainee should be familiar with:
  - experimental design (eg laboratory, epidemiology)
  - data acquisition, storage, interpretation and statistical analysis
  - scientific writing and presentational skills, including the formulation of a grant application
  - conducting clinical audit and feedback and be able to utilise data collection systems
- the trainee should have the opportunity to attend appropriate national and where possible international meetings relevant to their subspecialty

1.25 Teaching:
The trainee should gain experience in teaching which will include:
- some responsibility for teaching junior staff in their subspecialty area
- full participation in the unit's postgraduate programme with some administrative responsibility for the organisation of teaching in their subspecialty
- participation in the undergraduate teaching programme
- gain experience of appraisal and assessment techniques

1.26 Ethical and legal aspects:

1.26.1 The trainee should be able to discuss the ethical and legal aspects of the clinical practice of their subspecialty and should have particular knowledge of the relevant national laws, legislation and guidelines pertaining to:
- legislation, particularly recent, relevant to their subspecialty practice
- ethics of health care provision and resource allocation
- medical confidentiality
- Consent:
  - Nature of consent:
    - knowledge
    - capacity
    - voluntariness

- treatment of minors

- treatment of minors
- treatment of the incapacitated patient
- medical negligence
- role and relevance of Ethic Committees

- Reproductive Medicine:
  - Assisted conception techniques; detailed knowledge of:
    - the Human Fertilisation and Embryology Act (1990) and
    - its relevance to the practice of:
      - gamete storage and donation
      - surrogacy
      - fertility control
      - termination of pregnancy
      - fetal reduction
      - pre-implantation diagnosis
      - gene therapy and cloning
      - research on embryo
      - donation of fetal and ovarian tissue
      - role of regulatory bodies

1.26.2 the candidate should have a clear understanding of and interpretation of the following aspects of the Law

1.26.2.1 Surrogacy: Chapter: 19 of the Children's Act; Regs 175 of 2012

1.26.2.2 Gamete donation: National Health Act Chapter 8; Regs 175 of 2012; Regs 181 of 2012

1.26.2.3 Reproductive rights of parents: National Health Act Chapter 8; Regs 175 of 2012; Regs 181 of 2012

1.26.2. Donor-conceived children's rights: Children's Act Part 4 sections 40 and 41

1.27 Administration:

The trainee should be given some administrative experience and responsibility which will allow the development of skills relevant to the future provision and organisation of clinical services. Types of relevant knowledge and experience are listed below:

- an understanding of health service organisation and administrative and advisory structures
- an understanding of the mechanisms of health care purchasing, provision of care, resource allocation and contractual issues relevant to the clinical service
- be cognisant of the need for regional referral systems and role of tertiary service in health care provision
- the system for managing hospital complaints
- know how to review a service and formulate a business plan