



**POSTGRADUATE INSTITUTE OF MEDICINE  
UNIVERSITY OF COLOMBO**

**PROSPECTUS**

**POST MD SUBSPECIALTY TRAINING AND BOARD  
CERTIFICATION  
IN  
GYNAECOLOGICAL ONCOLOGY**

**POST MD SUBSPECIALTY TRAINING AND BOARD  
CERTIFICATION  
IN  
SUBFERTILITY**

*(To be effective from the year 2017)*

**BOARD OF STUDY IN OBSTETRICS & GYNAECOLOGY**

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This prospectus is made under the provisions of the Universities Act, The Postgraduate Institute of Medicine Ordinance, and the General By-Laws No. 1 of 2016 and By-Laws No. 2 of 2016 for Degree of Doctor of Medicine (MD) and Board Certification as a Specialist.

## **1. Justification and Proposed Outcome**

The Board of Study in Obstetrics and Gynaecology conducts Post MD subspecialty training programmes in Gynaecological Oncology and Subfertility. Changes in the higher education sphere in relation to training and assessments coupled with advances in the respective areas of subspecialisation have necessitated revision of the prospectus. The programmes meet the requirements of the relevant qualification descriptors and level descriptors of the Sri Lanka Qualifications Framework, and is set at Level 12 of the Sri Lanka Qualifications Framework.

**GYNAECOLOGICAL ONCOLOGY:** Cancers know no boundaries in relation to organs. It rapidly disseminates to affect other systems. Therefore oncology is a specialty where a wide understanding of the possible effects of a single disease is required before embarking on independent practice. Gynaecological Oncology encompasses the diagnosis and management of Gynaecological malignancies. Due to lack of effective organized screening programmes majority of women with gynaecological cancers in Sri Lanka present in advanced stages. Gynaecological oncological surgery readily crosses in to other disciplines such as vascular surgery, colorectal surgery, urology and plastic surgery. Therefore a multi-disciplinary approach is essential in the management. These services are best provided in cancer centres where radiotherapy and chemotherapy facilities are available.

As over 2000 gynaecological cancer patients are detected annually in the country, services of qualified gynaecological oncologists would improve the quality of treatment and hence survival. Therefore gynaecological oncology has become a specialty on its own, and meticulous skills are needed to be acquired for safe and effective clinical practice. The mission of the programme is to fulfil the need for fulltime specialists in gynaecological oncology.

**SUBFERTILITY:** Globally the incidence of subfertility is rising. The management of subfertility is an important aspect of reproductive health care especially because subfertility leads to serious adverse psychological and social sequelae. A greater awareness of newer Assisted Reproductive Technologies (ART) together with increased expectations of infertile couples have led to an increased demand for fertility enhancing services. It is estimated that approximately 270,000 – 400,000

couples in Sri Lanka are subfertile and approximately 1% of them will require advanced treatment modalities including ART.

The problem is well appreciated in Sri Lanka and most Gynaecologists have a special interest in subfertility. However, management of subfertility in Sri Lanka is not well coordinated and sufficient infrastructure facilities are lacking. It is necessary that the Ministry of Health expands the facilities available for advanced treatment of couples with subfertility to complement the facilities available in the private sector. This training programme is to fulfil the need for fulltime specialists in subfertility.

These Post MD Subspecialty Programmes help provide the skilled manpower needs of the projected tertiary level health care centres by producing specialists with up-to date knowledge and skills who shall provide leadership to the health care teams to achieve the desired outcomes.

## **2. Learning outcomes**

A Specialist trained in a subspecialty should:

- a) have appropriate diagnostic, operative, counselling, risk management, and medico-legal skills
- b) have appropriate professional attitudes
- c) be able to clearly document and prioritize problems
- d) be able to carry out and also supervise research and clinical audits
- e) be committed to Continuing Professional Development (CPD)
- f) be able to disseminate knowledge effectively
- g) have adequate communication skills
- h) have adequate knowledge and skills in Information Technology
- i) have administrative and organizational skills

## **3. Selection Process**

### **3.1. Entry Criteria**

Candidates who are successful at the MD in Obstetrics and Gynaecology examination are eligible to apply. Prevailing PGIM rules and regulations do not entertain dual board certification.

### **3.2. Selection process**

The trainees shall be selected based on the merit order at the MD (Obstetrics and Gynaecology) Examination. The prospective applicants will be informed of the number of positions available through an advertisement by the PGIM and at the post-MD allocation meeting.

### **3.3. Duration of training**

The duration of the programme shall be three years following selection for the subspecialty training programme.

**1<sup>st</sup> and 2<sup>nd</sup> year (local training):** This will consist of 24 months of training in Sri Lanka as a Senior Registrar. It is mandatory for a Trainee to undergo training in at least two training units with a minimum of six months at each training unit.

**3<sup>rd</sup> year (overseas):** This will consist of 12 months of training at a recognized overseas training unit under a trainer approved by the BOS/BOM.

With prior approval of the BOS a trainee may opt for one year of local training and two years of overseas training.

### **3.4. Training Centres**

The training will be in training units approved by the BOS/BOM. List of approved training centres are given in [Annex 1.](#)

## **4. Curriculum**

**GYNAECOLOGICAL ONCOLOGY:** The curriculum consists of 17 training modules. The details are given in [Annex 2.](#)

**SUBFERTILITY:** The curriculum consists of 13 training modules. The details are given in [Annex 3.](#)

## **5. Training Programme and progress**

The training programme shall consist of the following components.

### **5.1. Clinical training programme**

This will be hospital based training under the direct supervision of trainers of the units. Teaching will be done by trainers approved by the Board of Study. Resources such as wards, clinics, intensive care units, operating theatres, information technology facilities and libraries shall be used. The trainees will have to attend multidisciplinary case discussions, journal clubs and audit meetings.

### **5.2. Research and Audits**

**Research project:** For trainees who followed the MD Obstetrics and Gynaecology Prospectus 2012, completion of the research project is a prerequisite to sit the MD examination.

Trainees who followed the MD Obstetrics and Gynaecology Prospectus 2017 shall complete the research project already initiated during the Pre MD training. The completed Dissertation or proof of publication/acceptance of the research paper by a Peer reviewed indexed journal shall be submitted to the PGIM at least one month

before the completion of the post MD training programme for evaluation. The acceptance of the dissertation / publication is a prerequisite to be eligible to apply for the PBCA. (Refer the relevant Annexes in the Prospectus - MD in Obstetrics & Gynaecology and Board Certification-2017). Alternatively, with prior approval from the BOS the research paper may be based on another research project done during the post MD training.

**Clinical Audits:** All trainees shall carry out two (2) clinical audits during the training programme. The audit plan has to be approved by the BOS prior to commencement of the clinical audit cycle as per details in [Annex 4](#) and submit the Audit Reports to the PGIM for evaluation at least one month before the completion of the post MD training programme. Trainees are expected to formally present the audit at the hospital meetings where the work is done and obtain documentary evidence of such audit presentation. Trainees are encouraged to submit the audit reports (with documentary proof of presentation at hospital meetings) as and when they complete them during the training programme. The Acceptance of the Clinical Audit Reports is a prerequisite to be eligible to sit for the PBCA.

### 5.3. Portfolio

During this 36 months of training, the trainee has to document evidence of training and maintain a portfolio ([Annex 5](#)). This will enable the Trainee to reflect on the training experience and identify and correct any weaknesses in the competencies expected. This will also enable the trainee to recognize and analyse significant clinical events experienced so that appropriate changes in patient care could be adopted in order to improve the quality of care provided. The Trainer needs to conduct regular assessments and provide feedback. Documentary evidence shall be included in the portfolio certifying that the Trainee has satisfactorily acquired the required competencies. The Portfolio shall be used at the Pre Board Certification Assessment (PBCA) to evaluate the trainee's competence to practice independently as a Subspecialist.

The trainer shall ensure that the trainee has achieved desired competency levels by a combination of work place based assessments such as multisource feedback (MSF), objective structured assessment of technical skills (OSATS), mini-clinical evaluation exercise (Mini-CEX), direct observation of procedural skills (DOPS), case-based discussions (CbD), acute care assessment tool (ACAT), patient survey (PS), audit assessment and teaching observation. Evidence of work place based assessments should be included in the portfolio maintained by the trainee.

### 5.4. Progress reports

During the training period, progress reports will have to be submitted by the trainers once in six months using the form shown in [Annex 6](#). The onus of ensuring that the

progress reports are sent on time to the PGIM lies entirely with the trainee. He or she should liaise with the trainers and make sure that the reports are received by the PGIM on time. This includes local as well as overseas training. Satisfactory Progress Reports are a mandatory prerequisite to be eligible to sit for the pre board certification assessment.

Suitable and appropriate action will be taken by the Board of study according to the General Rules and Regulations of the PGIM in the event of the receipt of an adverse progress report at any stage of training.

## **6. Pre Board Certification Assessment (PBCA)**

### **6.1. Eligibility criteria to appear for the Pre Board certification Assessment (PBCA)**

The trainee shall be eligible to appear for the PBCA after having satisfactorily completed the following:

1. Satisfactory completion of the local training programme.
2. Satisfactory completion of the overseas training programme.
3. Acceptance of the two(2) audit reports by the board of study.
4. Acceptance of six monthly progress reports.
5. Submission of the Portfolio.
6. Acceptance of the dissertation or publication / acceptance for publication of the research paper (applicable for Trainees who followed the MD Obstetrics and Gynaecology Prospectus 2017).

### **6.2. Format of the Pre Board Certification Assessment (PBCA)**

The Assessment shall be based on:

- a) The Portfolio: A pair of examiners nominated by the BOS shall conduct the desk review of the Portfolio and the viva as described in [Annex 7](#).
- b) Oral Presentation: The candidate shall make a 10 – 15 minutes oral presentation acceptable to the Board of Study based on the post-MD training and future vision for improvement of quality of patient care/diagnostic services in Sri Lanka.

Successful candidates shall be recommended for board certification as a subspecialist in the relevant discipline.

**Failed candidates:** A failed candidate shall follow a counselling Session and sit for the PBCA again within a period of three months. If the candidate is successful at this attempt, the date of Board certification shall not be affected. If unsuccessful, the date of Board certification will be the date of passing the subsequent assessment following further training for a period of six months in a unit allocated by the BOS.

## **7. Recommended books/journals/web sites**

See [Annex 8](#) for recommended reading resources.



## **ANNEXURE 1 - List of Training Centres**

Currently approved training centres are given below. Any other training units approved in the future by the Board of Study will be added to the list and trainees will be notified of such centres at the allocation committee meeting.

### **Subspecialty training in Gynaecological Oncology**

1. Gynaecological Oncology Unit, National Cancer Institute, Maharagama
2. Gynaecological Oncology Unit, Teaching Hospital, Kandy

### **Subspecialty training in Subfertility**

1. Specialist Subfertility Unit, Castle Street Hospital for Women, Colombo
2. Specialist Subfertility Unit, Teaching Hospital, Kandy
3. Professorial Obstetrics and Gynaecology Unit, Faculty of Medicine, Colombo
4. Professorial Obstetrics and Gynaecology Unit, North Colombo Teaching Hospital, Ragama
5. Professorial Obstetrics and Gynaecology Unit, Teaching Hospital, Mahamodara, Galle
6. Professorial Obstetrics and Gynaecology Unit, Colombo South Teaching Hospital, Kalubowila

## **ANNEXURE 2 - Curriculum for Subspecialty Training in Gynaecological Oncology**

The Subspecialty Training programme in Gynaecological Oncology consists of 17 modules.

### **Module 1 General Assessment of a Gynaecological Oncology Patient**

#### **Objectives**

- To demonstrate the knowledge, skills and attitudes required to make an appropriate clinical assessment of a patient with a suspected or known gynaecological cancer:
  - Obtain an appropriate history.
  - Perform an appropriate examination.
  - Communicate results of prior investigations.
  - Initiate further investigations.
  - Communicate clinical plan to patient and relatives.

#### **Knowledge Criteria**

- A broad knowledge of the pattern of presentation of gynaecological malignancies.
- Knowledge of investigations required confirming diagnosis of gynaecological malignancy.
- Assessment of patient referred by 2-week wait (rapid referral).
- Knowledge of care pathways for suspected gynaecological cancer.
- Preoperative investigation of patients, including radiology, assessment of fitness for surgery.
- Understanding of the indications and limitations of screening for gynaecological cancer:
  - Cervix
  - Ovary (general and high-risk populations)
  - Endometrium (hereditary nonpolyposis colorectal cancer).

#### **Clinical Competency**

- Take an appropriate history:
  - Symptoms and co morbidity
  - Family history and genetic susceptibility

- Perform a clinical examination.
- Counsel patients about the diagnosis, investigations and appropriate treatments for gynaecological cancer including adverse effects and complications of treatment.
- Communicate to patients the results of investigations and treatment, including prognosis.
- Anticipate results of radiological investigations.
- Counsel appropriately about screening and interpret screening results.

### **Professional Skills and Attitudes**

- Ability to take a history and perform an appropriate examination.
- Ability to counsel patients regarding a diagnosis of gynaecological malignancy and the subsequent management.
- Ability to initiate preoperative work-up and staging investigations.
- Ability to identify the high-risk surgical patient and liaise with anaesthetists.
- Ability to liaise with clinical oncology, medical oncology and palliative care colleagues when appropriate.
- Counselling skills and knowledge of screening process.

### **Module 2 Pre-, Peri- and Postoperative Care Objectives**

#### **Objectives**

- To understand and demonstrate appropriate knowledge, skills and attitudes in relation to patients undergoing surgery for gynaecological malignancies:
  - Plan appropriate surgery.
  - Identify surgical and anaesthetic risks.
  - Prepare patients for surgery.
  - Manage peri-, intra- and postoperative complications.
  - Nutrition and total parenteral nutrition (TPN).

#### **Knowledge Criteria**

- Type of surgery appropriate for each gynaecological cancer (see separate modules).
- Fluid and electrolyte balance.
- Elemental feeding and TPN.

#### **Clinical Competency**

- Counsel patients regarding diagnosis, management and risks of treatment.

- Recognize and manage intraoperative complications.
- Postoperative care and complications arising.
- Manage the following clinical problems:
  - Intraoperative:
    - haemorrhage
    - bowel resection
    - unexpected finding
    - inoperability.
  - Postoperative:
    - thrombosis
    - infection
    - bowel obstruction.
- Inform patient of results.
- Appropriately order and interpret investigations:
- Haematological investigations
- Manage fluid balance perioperatively
- Order and supervise appropriate thromboprophylaxis.
- Liaise with nutritional support team.
- Decide when TPN or enteral feeding is appropriate.

### **Professional Skills and Attitudes**

- Ability to interpret preoperative investigations and liaise with the anaesthetic department.
- Ability to counsel patients regarding treatment options.
- Ability to select and perform appropriate surgical management of gynaecological cancer according to patient's needs.
- Ability to manage postoperative care and complications thereof.
- Ability to counsel patients and relatives regarding diagnosis, investigations and to discuss treatment options, advantages and disadvantages of each.
- Ability to convey decisions of multidisciplinary team meeting to patients and relatives, including prognosis and palliative care.
- Ability to liaise with colleagues and other health professionals regarding coordinating investigations and management strategies pertinent to individual patients.
- Ability to order and interpret:
  - Fluid balance
  - Blood investigations: U&E, FBC, LFT.
- Ability to prescribe thromboprophylaxis.
- Ability to assess patient and establish when enteral feeding or TPN is required.

### **Module 3 Generic Surgical Skills In Gynaecological Oncology**

#### **Objectives**

- To achieve surgical skills appropriate for a subspecialist gynaecological oncology surgeon:
  - Anatomical knowledge.
  - Surgical skills.
  - Personal audit

#### **Knowledge Criteria**

- Anatomy of the female abdomen and pelvis, including blood supply, lymphatic drainage, nervous system and the course of the ureter.

#### **Clinical Competency**

- Surgical diagnosis and management of gynaecological cancers:
  - Ovary
  - Endometrium
  - Cervix
  - Vulva
  - Vagina
  - Fallopian tube.
- Liaison with surgical colleagues for assistance in complicated cases.

#### **Professional Skills and Attitudes**

- Ability to perform hysterectomy.
- Ability to perform radical hysterectomy.
- Ability to perform pelvic lymph node dissection (open and laparoscopically).
- Ability to perform para-aortic lymph node dissection (open and laparoscopically).
- Ability to perform infracolic and supracolicomentectomy.
- Ability to perform fine-needle aspiration or biopsy of superficial lymph node.
- Ability to perform Trucut biopsy.
- Ability to perform (with the assistance of surgical colleagues if necessary; see modules 13 and 14):
  - Exenterative surgery
  - Urinary diversion procedures
  - Ileostomy/colostomy.
- Ability to organise anterior, posterior and total exenteration, including leading the surgical procedure.

- Ability to initiate discussion of management at multidisciplinary team meeting.

## **Module 4. Ovarian Cancer**

### **Objectives**

- To understand and demonstrate appropriate skills and attitudes in relation to managing a patient with a diagnosis of presumed ovarian cancer (risk of malignancy index greater than 200).
- Initial assessment and investigations of suspected ovarian cancer.
- Plan subsequent management of suspected ovarian cancer.
- Perform appropriate diagnostic or treatment surgery.
- Communicate with multidisciplinary team and organise adjuvant treatment.
- Plan follow-up.

### **Knowledge Criteria**

- Aetiology and clinical presentations of ovarian cancer.
- Pathology of ovarian cancer.
- Indications, techniques, limitations and complications of surgical treatment of ovarian cancer.
- Surgical pathway of suspected ovarian cancer (imaging, tumour markers).
- Medical pathway of suspected ovarian cancer (histological and cytological diagnosis, neoadjuvant and adjuvant treatment).
- Multidisciplinary team meeting discussions and management planning.
- Radiological assessment for preoperative diagnosis and guided biopsy.
- Role of laparoscopy in assessment.
  - Surgery:
    - Case selection
    - Primary surgery
    - Interval debulking surgery
    - Fertility conserving
- Medical management of ascites, pleural effusions and bowel obstruction.
- Consideration of all management options including best supportive and palliative care.
- Knowledge of the physical and psychosexual morbidity of cancer diagnosis and treatment.

### **Clinical Competency**

- Counsel patient and relatives about:
  - Diagnosis and further therapy

- o Surgical options and complications
  - o Medical options
  - o Prognosis.
- Discuss results of the surgery with patient and relatives and carers.
- Communicate with referral unit and primary care.
- Perform appropriate surgery for diagnosis and surgical management of ovarian cancer, including optimal debulking surgery. (see module 3).
- Management of recurrent disease.
- Discharge from hospital and produce appropriate follow-up plan.
- Detect and manage physical and psychosexual morbidity (e.g. referral to lymphoedema specialist nurse, psychotherapist or counsellor).

### **Professional Skills and Attitudes**

- Ability to counsel patients sensitively about the options available and to respect patient confidentiality.
- Ability to explain clearly and openly about treatments, complications and adverse effects of surgical treatment.
- Ability to formulate and implement a plan of management and modify if necessary.
- Ability to liaise effectively with colleagues in other disciplines, clinical and non-clinical.
- Ability to appropriately stage ovarian cancer.
- Ability to perform optimal debulking surgery for ovarian cancer.
- Ability to decide appropriate surgery, including resection of bowel and formation of stoma.
- Ability to select patients for conservative surgery, e.g.unfit, stage-4 disease, very young (less than 35years).
- Ability to perform a laparoscopic assessment and biopsy in suspected advanced ovarian cancer to obtain histology.
- Ability to counsel patients regarding entry into clinical trials.

### **Module 5 Cancer of the Uterus**

#### **Objectives**

- To understand and demonstrate appropriate skills and attitudes in relation to managing a patient with a diagnosis of uterine cancer.
- Undertake primary surgical management.
- Understand management options to address co-morbidity.
- Manage recurrent disease.

#### **Knowledge Criteria**

- Aetiological factors leading to endometrial cancer, including obesity,

estrogens, genetic predisposition.

- Histological types of endometrial cancer and prognostic implications.
- Preoperative investigation of patients, including radiology, assessment of fitness for surgery.
- Risk of major surgery (surgical and anaesthetic)
- Preoperative care of patient undergoing major surgery for gynaecological cancer.
- Type of surgery appropriate for endometrial cancer.
- Role of radiotherapy in the treatment of endometrial cancer.
- Inpatient clinical trials.
- Recruitment into clinical trials.
- Risk factors for recurrent disease
- Patterns of recurrent disease.
- Management options for recurrent disease.
- Rare uterine tumours, e.g. sarcomas.

### **Clinical Competency**

- Take a history and investigate patients with suspected and proven endometrial cancer.
- Histological diagnosis of endometrial cancer.
- Order and interpret investigations of endometrial cancer (e.g. magnetic resonance imaging).
- Formulate a management plan.
- Ability to liaise with anaesthesia department.
- To counsel patients regarding diagnosis, management and risks of treatment.
- Perform appropriate surgery including:
  - Opening and closing midline laparotomy
    - Laparoscopic assessment of abdominal cavity
    - Defining ureters and gonadal vessels
    - Pelvic node dissection/sampling.
    - Para-aortic node biopsy
    - Salpingo-oophorectomy (bilateral).
    - Total hysterectomy.
- Recognize and manage intraoperative complications.
- Postoperative care and complications arising.
- FIGO staging of tumour.
- Inform patient of results.
- Understand need for postoperative radiotherapy.
- Liaise with clinical oncology.
- Follow-up care.
- Recognition of recurrence of disease.



- Investigation of suspected recurrent disease.
- Management of recurrent disease.

### **Professional Skills and Attitudes**

- Ability to take history and investigate appropriately.
- Ability to recognize histological patterns of disease.
- Ability to interpret preoperative investigations and liaise with anaesthetic department.
- Ability to counsel patients regarding treatment options and histology.
- Ability to select and perform appropriate surgical management of endometrial cancer according to patient's needs.
- Ability to undertake:
  - Total abdominal hysterectomy and bilateral
  - salpingo-oophorectomy
  - Pelvic node dissection/sampling
  - Para-aortic node biopsy
  - Laparoscopy-assisted vaginal hysterectomy.
- Ability to manage postoperative care and complications thereof.
- Ability to define FIGO stage of tumour.
- Ability to decide need for adjuvant therapy.
- Ability to follow up patients appropriately.

### **Module 6 Cancer of the Cervix**

#### **Objectives**

- To understand and demonstrate appropriate skills and attitudes in relation to managing a patient with a diagnosis of cancer of the cervix.
- Diagnose, investigate and manage a patient with cancer of the cervix.
- Perform appropriate surgery for cervical cancer and manage treatment complications.

#### **Knowledge Criteria**

- Detailed knowledge of the anatomy of the female pelvis, including blood supply, nervous system and lymphatic drainage of the region.
- Knowledge of the course of the ureter throughout the pelvis.
- Understanding of the epidemiology and aetiology of cervical cancer.
- Understanding of the pathophysiology of cervical intraepithelial neoplasm (CIN).
- Understanding of the role of human papillomavirus (HVP) in the aetiology and development of CIN and cervical cancer.
- Knowledge of the presentation and diagnosis of cervical cancer.
- Pathology of cervical cancer.

- Understanding of staging of cervical cancer.
- Knowledge of the management of all stages of cervical cancer including surgery and chemo radiation.
- In-depth knowledge of radiotherapy principles of treatment and appropriate application to cervical cancer.
- Knowledge of appropriate chemotherapy for cervical cancer.
- Knowledge of complications and adverse effects of treatment of cervical cancer, both short- and long term.
- Knowledge of pattern of disease recurrence and appropriate management.
- Knowledge of the physical and psychosexual morbidity of cancer diagnosis and treatment.

### **Clinical Competency**

- Take an appropriate history.
- Perform a clinical examination.
- Perform colposcopy.
- Perform cervical biopsy including punch biopsy, large-loop excision of the transformation zone (LLETZ), and ablation therapy in appropriate cases.
- Perform clinical staging for invasive cervical cancer.
- Perform total hysterectomy (both abdominal and vaginal).
- Perform radical hysterectomy.
- Perform pelvic lymphadenectomy.
- Perform para-aortic lymph node biopsy.
- Counsel patients about the diagnosis, investigations and appropriate treatments for cervical cancer, including adverse effects and complications of treatment.
- Communicate to patients' results of investigations and treatment, including prognosis and palliative care.
- Interpret results of radiological investigations appropriate to cervical cancer.
- Assist in delivery of brachytherapy.
- Assist in delivery of chemo radiation therapy.
- Manage adverse effects and recognize complications of treatment.
- Diagnose, investigate and manage recurrent cervical cancer.
- Select patients for exenterative surgery.
- Detect and manage physical and psychosexual morbidity (e.g. referral to lymphoedema specialist nurse, psychotherapist or counsellor).

### **Professional Skills and Attitudes**

- Ability to take history and examination.
- Ability to perform colposcopy.
- Ability to perform cervical biopsy and LLETZ.

- Ability to perform clinical staging, including cystoscopy with biopsy.
- Ability to perform hysterectomy.
- Ability to perform radical hysterectomy.
- Ability to perform pelvic lymph node dissection (open and laparoscopically).
- Ability to perform para-aortic lymph node dissection (open and laparoscopically).
- Ability to insert brachytherapy applicators.
- Ability to assist with external beam radiotherapy and chemotherapy.
- Ability to interpret:
  - Chest X-ray
  - Intravenous urogram
  - Pelvic MRI
- Computed tomography scan.
- Ability to perform (with the assistance of surgical colleagues where necessary):
  - Exenterative surgery
  - Urinary diversion procedures
  - Ileostomy and colostomy.
- Ability to organize anterior, posterior and total exenteration, including leading the surgical
- procedure
- Ability to initiate discussion of management at multidisciplinary team meeting.
- Ability to counsel patients and relatives regarding diagnosis, investigations and discuss treatment options and advantages and disadvantages of each.
- Ability to convey decisions of multidisciplinary team to patients and relatives, including prognosis and palliative care.
- Ability to liaise with colleagues and other health professionals regarding coordinating investigations and management strategies pertinent to individual patients.

## **Module 7 Cancer of the Vulva**

### **Objectives**

- To diagnose, investigate and manage a patient with cancer of the vulva.
- Competently perform appropriate surgery in a patient with vulva cancer.
- Manage complications of treatment.

### **Knowledge Criteria**

- Anatomy of the vulva, femoral triangle, vaginal region and lower abdominal

wall, including blood supply, nerve distribution and lymph drainage of the region.

- Epidemiology and aetiology of vulval cancer.
- Histopathology of vulval cancer.
- Pattern of spread of vulval cancer.
- Staging of vulval cancer.
- Diagnosis and investigations for vulval cancer.
- Principles of treatment of all stages of vulval cancer.
- Complications of treatment and appropriate management of all stages of vulval cancer.
- Pattern of recurrence of vulval cancer.
- Recognition and management of recurrent cancer of the vulva.
- Long-term complications of treatment of vulval cancer:
  - Lymphocysts
  - Lymphoedema
  - Neuralgia.
- Knowledge of the psychosexual morbidity of cancer diagnosis and treatment.

### **Clinical Competency**

- Take an appropriate history.
- Perform a simple rotation flap to achieve primary closure of vulval wound.
- Perform appropriate clinical investigations.
- Perform a biopsy of vulva.
- Perform vulvoscopy.
- Perform a wide local excision of vulva.
- Perform a simple vulvectomy.
- Perform a radical vulvectomy.
- Perform a subfascial groin node dissection.
- Developments in the surgical treatment of vulval cancer, including sentinel node detection.
- Liaise with plastic surgeon to select and manage patients requiring major skin flaps to close vulval wounds.
- Perioperative management of vulval cancer patients.
- Manage recurrence of vulval cancer.
- Long-term management of vulval cancer patients.
- Detect and manage physical and psychosexual morbidity (e.g. referral to lymphoedema specialist nurse, psychotherapist or counsellor).

### **Professional Skills and Attitudes**

- Ability to take history.
- Ability to perform appropriate examination.

- Ability to investigate and counsel patients regarding treatments.
- Ability to select and perform competently diagnostic and therapeutic surgery for vulval cancer.
- Ability to perform sentinel node detection.
- Ability to perform simple skin flaps.
- Ability to perform major skin flaps with plastic surgeon.
- Ability to manage patient's postoperative care.
- Ability to manage complications of treatment.
- Ability to perform (with the assistance of surgical colleagues if necessary):
  - Exenterative surgery
  - Urinary diversion procedures
  - Ileostomy/colostomy.
- Ability to organize anterior, posterior and total exenteration, including leading the surgical procedure.

## **Module 8 Vaginal Cancer**

### **Objectives**

- To understand and demonstrate appropriate skills and attitudes in relation to managing a patient with a diagnosis of vaginal cancer.
- Undertake primary surgical management.
- Understand management options to address co morbidity.
- Manage recurrent disease.

### **Knowledge Criteria**

- Anatomy of the vagina.
- Aetiology of vaginal cancer, including sarcoma botryoides and metastatic lesions.
- Benign conditions.
- Pathophysiology of vaginal intraepithelial neoplasia.
- Multifocal lower genital tract malignancy.
- Clinical presentation, investigation and FIGO staging.
- Detailed management of vaginal cancer.
- Physical and psychosexual morbidity of cancer diagnosis and treatment.

### **Clinical Competency**

- Take a history and perform an appropriate examination.
- Perform vaginoscopy and vaginal biopsy.
- Arrange staging and imaging investigations.
- Arrange and aid delivery of radio or chemotherapy.
- Counsel and take consent from patient.
- Perform partial vaginectomy.

- Perform radical vaginectomy.
- Detect and manage physical and psychosexual morbidity (e.g. referral to lymphoedema specialist nurse, psychotherapist or counsellor).

## **Professional Skills and Attitudes**

- Ability to perform vaginal biopsy.
- Ability to perform partial vaginectomy:
  - Abdominal approach
  - Vaginal approach.
- Ability to perform radical excision of vagina (exenterative surgery; see modules 3, 6 and 7).

## **Module 9 Medical Oncology**

### **Objectives**

- To understand the role of chemotherapy in the management of gynaecological cancers.
- To understand the pharmacology of the major drugs used in chemotherapy.
- To understand the role and latest trial results of chemotherapy in gynaecological tumours.

### **Knowledge Criteria**

- Relevant cell biology including:
  - Cell-cycle kinetics
  - Log kill hypothesis
  - Cycle and phase specificity.
- Classes of chemotherapeutic agents and their mechanisms of action.
- Pharmacology of the main agents used in gynaecological cancers.
- Principles of dose calculation and scheduling.
- Understand the benefits and limitations of single agent and combination chemotherapy.
- Guidelines and definitions for evaluation of response.
- Principles of phase I, II, and III clinical trials.
- Conversation with seminal chemotherapeutic trials in gynaecological cancers.
- Understand the concept of adjuvant and neoadjuvant therapy.
- Short- and long-term toxicity, both general and drug specific.
- Chemotherapeutic management of gestational trophoblastic disease.
- The role of hormonal and other agents.
- Therapeutic options for recurrent disease

### **Clinical Competency**

- Take an appropriate history.
- Perform a clinical examination.
- Knowing the indications for chemotherapy.
- Assessment of response to chemotherapy.

- Counsel patients about the basics of chemotherapy, including adverse effects and complications of treatment.
- Knowing the limitations of chemotherapy and when to change or stop treatment.
- Recognition, assessment and management of acute and chronic toxicity.

#### **Professional Skills and Attitudes**

- Ability to discuss management at multidisciplinary team meeting, including most appropriate
- Chemotherapy regimen, according to patient's disease and medical status.
- Ability to counsel patients about the basics of chemotherapy, including adverse effects and complications of treatment.
- Ability to liaise with colleagues and other health professionals regarding coordinating investigations and management strategies pertinent to individual patients.
- Ability to recognize, investigate and management of toxicity.
- Ability to counsel patients about clinical trials.

### **Module 10 Clinical Oncology**

#### **Objectives**

- To have sufficient familiarity with principles and practice to inform patients appropriately and recognize complications.

#### **Knowledge Criteria**

- Cell-cycle kinetics.
- Radiation effects.
- Recovery and repair of tissues.
- Potentiation of effects.
- Protection.
- Sensitivity of different organs.
- Different types of radiation.
- Inverse square law.
- Time–dose relationships.
- Half-life isotopes.
- Ionization and modifying factors.
- Radiation units.
- Isodose curves.
- Principles of fractionation.
- Orthovoltage and supravoltage.
- CT planning and dosimetry.
- Types of fields.



- Types of sources and methods.
- Use of chemotherapy as an adjuvant complications in:
  - Gastrointestinal tract
  - Urinary tract
  - Skin
  - Bone marrow
  - Kidney
  - Ureter
  - Central nervous system
  - Genital tract.

### **Clinical Competency**

- Understand principles of radiotherapy.
- Understand how radiotherapy affects organs and radio sensitivity of different cancers.
- Select patients for radiotherapy according to disease, tumour type and stage.
- Understand how to plan patients for radiotherapy.
- Counsel patient on how radiotherapy works, how it will affect them and what complications may occur.
- Understand the difference between curative and palliative treatment.
- Management of long-term effects of radiotherapy:
  - Vaginal stenosis
  - Ovarian failure
  - Oedema
  - Osteopenia
  - Fistula.
- Recognition, investigations and management of recurrent gynaecological cancer following primary radiotherapy and chemo radiation.

### **Professional Skills and Attitudes**

- Ability to select patients for radiotherapy.
- Ability to counsel patients regarding radiotherapy treatment.
- Ability to plan radiotherapy treatment.
- Ability to counsel patients regarding complications.
- Ability to recognize and manage adverse effects of radiotherapy:
  - Skin
  - Urinary tract
  - Gastrointestinal tract
  - Vagina:
    - dryness
    - hormone replacement therapy

- dilators
  - Psychosexual.
- Ability to recognise and manage major complications of radiotherapy in liaison with other colleagues:
  - fistula
  - vaginal stenosis
  - oedema
  - osteopenia.
- Ability to recognize and investigate tumour recurrence.

## **Module 11 Radiology**

### **Objectives**

- To understand the role of imaging in gynaecological cancer.
- Principles of different imaging modalities.

### **Knowledge Criteria**

- Main imaging modalities in gynaecological oncology:
  - Physics
  - Indications
  - Limitations.
  - Nuclear medicine.
  - Intervention radiology:
    - Guided biopsies
    - Stenting
    - Caval filters
    - Embolisation.
  - Sentinel node assessment.

### **Clinical Competency**

- Assessment and interpretation with relevance to clinical scenario:
  - Standard plain ultrasound
  - Cross-sectional imaging
  - Nuclear.
- Ability to recognize the indications for interventional radiology.

### **Professional Skills and Attitudes**

- Discussion of images with relevance to clinical scenario with radiologist/trainers.

## **Module 12 Palliative Care**

### **Objectives**

- To understand the concept and delivery of care to patients with terminal gynaecological malignant disease.
- Decision for palliative care.
- Holistic approach to the symptoms and anxieties of the patient and their relatives.

### **Knowledge Criteria**

- Role of palliative care team in gynaecological malignancy:
- How to break bad news to a patient
- Symptoms associated with terminal malignancy
- Causes of and patterns of pain
- Therapies for pain relief and how they work
- Choice of appropriate analgesic
- Pain services available
- Pathophysiology of nausea and vomiting
- Therapies for treatment of nausea and vomiting
- Anxiety and depression
- Counselling for patient and family
- Pathophysiology of oedema
- Therapies for relief of oedema
- Palliative care team in hospital, hospice and community.
- Community support roles of:
  - General practitioner
  - District nurse
  - Cancer specialist nurse
  - Family
  - Religion
- Cancer support groups
- Social services.
- Role of palliative care in multidisciplinary team function.

### **Clinical Competency**

- Effective and sympathetic communication skills.
- Recognize when a patient should have palliative care input into management.
- Recognize and appropriately manage symptoms in a palliative care setting.
- Recognize anxiety and depression and psychosexual problems and involve appropriate teams in management.
- Work within a palliative care team in hospital, hospice and community.

### **Professional Skills and Attitudes**

- Ability to communicate with patients and give information about disease process, including bad news.
- Ability to appropriately involve members of palliative care team in patient management.
- Ability to manage patients' symptoms in liaison with palliative care team.
- Ability to work as part of a palliative care team in hospital, hospice and community.
- Ability to involve palliative care team in multidisciplinary team framework.

### **Module 13 Urology**

#### **Objectives**

- To have an understanding of the impact of gynaecological cancer and its treatment on the renal tract.
- Aware of possible urological complications.
- Identify and manage urological complications.

#### **Knowledge Criteria**

- Anatomy and physiology of kidney, ureter, bladder and urethra.
- Effects of gynaecological malignancy upon urinary tract.
- Effects of treatment for gynaecological malignancy on urinary tract; e.g. radical surgery, radiotherapy.
- Communication with patients and family about the effects of gynaecological malignancy and treatments on urinary system; e.g. fistula, obstruction, bladder disorders.
- Interpret investigations ordered.
- Recognition and management of injury to urinary tract.
- Principles of repair of injury to:
  - Ureter
  - Bladder
  - Urethra.
- Selection of patients who would benefit for intervention surgery involving the urinary tract; e.g. Urethral stenting, fistula repair, exenterative surgery.
- Pre- and postoperative care of patients undergoing urology procedure.

#### **Clinical Competency**

- Ability to appropriately investigate and diagnose disorders of the urinary tract in a gynaecological cancer setting.
- Appropriate ordering of investigation and liaison with urology team.
- Investigation of diseases of urinary tract:

- o Urine (microscopy, culture and sensitivity; biochemistry)
  - o Haematology
  - o Ultrasound
  - o X-ray
  - o Magnetic resonance imaging
  - o Cystoscopy
  - o Ureteroscopy.
- Knowledge of damage to ureter and bladder due to disease process or surgery; e.g. fistula, obstruction, surgical injury.
- Perform:
  - o Cystoscopy
  - o Repair to bladder
  - o Dissection of ureter.

### **Professional Skills and Attitudes**

- Effectively manage patients with suspected disorders of urinary tract.
- Order and interpret investigations of urinary tract.
- Appropriate selection of patients for intervention surgery involving the urinary tract.
- Insert suprapubic catheter.
- Perform cystoscopy.
- Perform surgical repair of bladder injury.
- Perform (with the assistance of urology colleague if necessary):
  - o Ureteroscopy
  - o Insertion of ureteric stent
  - o Repair of ureter
  - o Ureteric reimplantation
  - o Primary anastomosis of ureter
  - o Cystectomy
  - o Ileal conduit
  - o Continent urinary diversion.

### **Module 14 Colorectal Surgery**

#### **Objectives**

- To understand the role of fluid balance and nutrition in the surgical patient.
- To understand the indications and principles of bowel resection and repair in the context of gynaecological oncology.
- Accidental bowel injury.
- Elective bowel resection.

### **Knowledge Criteria**

- Anatomy and physiology of gastrointestinal tract.
- Pathophysiology of intestinal function.
- Care of critically ill patient.
- Principles of surgery of gastrointestinal tract, including exposure handling and injury to tissues.
- Principles of resection and repair of intestinal tissues:
  - Primary repair
  - Secondary repair
  - Ileostomy
  - Colostomy.
- Indications to perform bowel surgery in a gynaecological oncology setting.
- Use of radiology in investigation and management of gastrointestinal tract disorders.
- Appropriate selection of patients who will benefit from bowel surgery.
- Preoperative preparation required for a patient who may or will have bowel surgery.

### **Clinical Competency**

- Perform rigid sigmoidoscopy.
- Counsel patients preoperatively and postoperatively regarding bowel surgery and stoma management, including benefits, risks and complications.
- Perform laparotomy and identify abnormalities throughout abdominal cavity, including liver, spleen, omentum, appendix, peritoneum, pancreas and large and small bowel.
- Oversew serosal injury to bowel.
- Repair mucosal injury to small bowel.
- Select area to be resected and perform primary anastomosis of small bowel.
- Select area and perform ileostomy.
- Perform appendicectomy.
- Select appropriate tissue and resect large bowel with formation of colostomy.
- Mark stoma site appropriately.
- Order and interpret appropriate investigations preoperatively.
- Order appropriate bowel preparation preoperatively.
- Select patients preoperatively and intraoperatively who will benefit from bowel surgery.
- Manage postoperative care of patients following bowel surgery.

### **Professional Skills and Attitudes**

- Ability to perform sigmoidoscopy.

- Ability to counsel patient regarding bowel surgery and stoma management, including preoperatively.
- Ability to perform exploratory abdominal procedure.
- Ability to perform bowel surgery:
  - Oversee serosa
  - Repair small bowel injury
  - Resect and reanatomose small bowel
  - Appendicectomy.
- Ability to perform bowel surgery (with the assistance of surgical colleagues if necessary):
  - Ileostomy
  - Colostomy
  - Resection of large bowel
  - Primary anastomosis of large bowel
  - Abdominal perineal resection.
- Ability to select and mark stoma site.

## **Module 15 Plastic Surgery and Wound Care**

### **Objectives**

- Understand the principles of plastic surgery and its indication in the management of gynaecological malignancy.
- Surgical procedures.
- Management of wound complications.

### **Knowledge Criteria**

- Physiology of wound healing and factors influencing healing.
- Surgical site infection.
- Recognize and manage wound dehiscence.
- Management of incisional hernia.
- Anatomy of vulva, perineum and groin.
- Techniques of vulval repair and reconstruction.
- Vaginal reconstruction.
- Breast cancer.
- 

### **Clinical Competency**

- Management of surgical site infections.
- Management of wound dehiscence.
- Management and performance of appropriate repair.
- Repair of incisional hernia, including use of mesh.
- Selection of patients for appropriate surgical intention using:
  - Split-thickness skin graft

- o Rotational flaps
  - o Advancement grafts
  - o Myocutaneous flaps.
- Williams's procedure.
- Split-thickness skin graft.
- Myocutaneous graft.

### **Professional Skills and Attitudes**

- Ability to close wound, including choice of suture material.
- Ability to diagnose and select antibiotics and identify need for incision and drainage.
- Ability to repair wound dehiscence.
- Ability to repair incisional hernia:
  - o Without mesh
  - o With mesh.

## **Module 16 Gestational Trophoblastic Disease**

### **Objectives**

- To diagnose, investigate and manage a patient with gestational trophoblastic disease.

### **Knowledge Criteria**

- Definition and classification of gestational trophoblastic disease.
- Epidemiology and aetiology of gestational trophoblastic disease.
- Histopathology of gestational trophoblastic disease.
- Clinical features and behaviour of different entities of gestational trophoblastic diseases.
- Principles of management of different entities gestational trophoblastic diseases.
- Principles and pitfalls in the measurement of human chorionic gonadotrophin.
- Diagnosis and staging of gestational trophoblastic neoplasia.
- Histopathological features of gestational disease.
- Complications of treatment and management of gestational trophoblastic disease and neoplasia.
- Management of chemoresistant and relapsed gestational trophoblastic neoplasia.
- Role of surgery and radiotherapy in the management of gestational trophoblastic neoplasia.
- Genetic and molecular markers and their potential clinical applications.



### **Clinical Competency**

- Take an appropriate history.
- Perform appropriate clinical examination and investigations.
- Perform suction evacuation for molar pregnancy.
- Perioperative management of patients undergoing suction evacuation for molar pregnancy.
- Appropriate follow-up of patients following a molar pregnancy.
- Decide need for and perform hysterectomy in emergency situations.
- Diagnose and stage gestational trophoblastic neoplasia.
- Follow-up patients following treatment for gestational trophoblastic neoplasia

### **Professional Skills and Attitudes**

- Ability to take history and perform appropriate physical examination.
- Ability to counsel patients about a diagnosis of molar pregnancy and its subsequent management.
- Ability to perform suction evacuation, including preoperative, intraoperative and postoperative management.
- Ability to counsel patients on contraception and pregnancy outcome following molar pregnancy.
- Ability to counsel patients about a diagnosis of gestational trophoblastic neoplasia.
- Ability to carry out appropriate investigations for staging of gestational trophoblastic neoplasia and to classify patients into low- or high-risk groups.
- Ability to counsel patients on the possible adverse effects of treatment.
- Ability to manage complications of treatment.
- Ability to register patients at supraregional centre for follow up.

## **Module 17 Genetic Predisposition to Gynaecological Cancer**

### **Objectives**

- To diagnose, investigate and manage a patient with a genetic predisposition to gynaecological cancer.
- Management of patients with a family history suggesting genetic predisposition to gynaecological cancer.
- Understanding of familial ovarian cancer syndromes, *BRCA* and hereditary nonpolyposis colorectal cancer.
- Concepts of cancer screening.
- Issues surrounding prophylactic surgery.

### **Knowledge Criteria**

- Background for a patient with a genetic predisposition to gynaecological cancer.
- Epidemiology and aetiology of a genetic predisposition to gynaecological cancer.
- Molecular biology and histopathology of a genetic predisposition to gynaecological cancer.
- Clinical features and behaviour of different genetic predispositions.
- Principles of management of different entities for these genetic predispositions.
- Principles and pitfalls in the assessment of the molecular biology techniques presently available.
- Complexity of counselling and complications of subsequent management of patients with a genetic predisposition to gynaecological cancer.
- Role of prophylactic surgery in the management of patients with a genetic predisposition to
- Gynaecological cancer and the specific problems for follow-up in relation to hormonal psychological and reproductive sequelae.

### **Clinical Competency**

- Take an appropriate history.
- Determine a patient's pedigree.
- Counsel a well patient with a known predisposition to gynaecological cancer.
- Perform appropriate clinical examination and investigations.
- Perform prophylactic surgery involving laparoscopic techniques as required.
- Work with other disciplines to ensure appropriate management.
- Liaise with medical genetics department to assess risk of developing cancer.

### **Professional Skills and Attitudes**

- Ability to take history and perform appropriate physical examination.
- Ability to counsel well patients regarding a diagnosis and subsequent management of patients with a genetic predisposition to gynaecological cancer.
- Ability to perform preoperative, intraoperative and postoperative managements as required.
- Ability to counsel patients on hormonal and other medication in relation to outcomes after screening or treatment.
- Ability to organize appropriate investigations for screening if conservative approach taken.
- Ability to recognize the requirement for failsafe for conservative management.

- Ability to counsel patients on the possible adverse effects of treatment.
- Ability to manage complications of treatment.
- Ability to perform prophylactic surgery for gynaecological cancer.

### **ANNEXURE 3 -Curriculum for Subspecialty Training in Subfertility**

**Learning Outcomes:** At the completion of the sub-specialty training programme the trainee shall be able to:

- Demonstrate an in depth knowledge of the pathogenesis of subfertility
- Understand and demonstrate appropriate knowledge, skills and attitudes in relation to female reproductive endocrinology
- Investigate and manage the subfertile couples as an expert, using appropriate methods including art.
- Develop appropriate and positive attitudes towards the management of subfertile couples who suffer a severe psychological stress
- Offer prognosis and provide appropriate counselling
- Organize coordinate and manage an advanced/ tertiary subfertility care facility
- Function as a team leader and interact well with other specialists in the team. Eg embryologists, geneticists, andrologists and laboratory technologists.
- Carry out quality controls and audits, and provide quality assurance.
- Carry out relevant research
- Understand the assessment and management of recurrent miscarriage
- Demonstrate the knowledge and skills for patients requiring emergency gynaecology

The trainee is expected to acquire an understanding of the knowledge requirements, develop the capacity and acquire clinical competencies, and acquire experience and knowledge on the professional skills and attitudes described in the modules below. The curriculum for the specialist training in subfertility is divided in to following 13 modules. The detailed curriculum is shown below.

#### **1. Early pregnancy development**

##### ***Knowledge criteria:***

##### **Endocrinology of pregnancy**

- Fetoplacental unit: Physiology and pathophysiology of steroid hormones (e.g. oestrogen, progesterone, corticosteroids)
- Physiology of decidual-chorionic-placental peptide hormones (e.g. gonadotrophins, somatomammotrophin, thyrotrophin, adrenocorticotrophic hormone / opioid peptides and prolactin)
- Pathophysiology of altered maternal thyroid, adrenal and pancreatic status during pregnancy

### Embryology

- Development of embryo and abnormalities which will have an influence on reproduction, in particular development of genital tract
- Factors controlling male and female development of the gonadal primordia, internal duct system and external genitalia
- Developmental abnormalities of the genital tract, including ambiguous genitalia, imperforate hymen and vaginal septa, uterine anomalies, müllerian and Wolffian dysgenesis, Rokitansky syndrome and gonadal dysgenesis
- Embryology of hypothalamic–pituitary and other pertinent endocrine systems
- Embryonic development of the genital tract, including the factors controlling male and female development of the gonadal primordia, internal duct system and external genitalia
- Diagnosis and management of patients with developmental abnormalities of the genital tract, including ambiguous genitalia, imperforate hymen and vaginal septa, uterine anomalies, müllerian agenesis and gonadal dysgenesis
- Embryology of the urological system

### ***Clinical competency:***

- In a patient with early pregnancy complications.
  - Take a history and perform an appropriate clinical examination
  - Organise appropriate endocrine and radiological investigations
  - Be able to undertake expectant, medical and surgical management of miscarriage
- Counsel a patient with miscarriage about
  - Causes of miscarriage
  - Treatments
- Discuss implications following molar pregnancy
- Formulate a management plan related to pathological findings in development abnormalities

### ***Professional skills and attitude:***

- Counsel patients and their partners with early pregnancy problems and pregnancy loss with sensitivity and empathy
- Explain clearly and openly treatments, complications and adverse effects of medical and surgical treatment

- Counsel patients and parents/carer/guardian sensitively about disease process and explain condition, issues regarding future fertility, hormonal implications and gender identity.
- Sensitively address adolescents concerns about sexuality and/or sexual functioning
- Liaise effectively with colleagues in other disciplines, clinical and non-clinical
- Counsel patients and parents / carer / guardians sensitively about options available and to invite patient and parents opinion.

## 2.Reproductive endocrinology & immunology

### ***Knowledge criteria***

#### Neuroendocrine anatomy and physiology

- Anatomical and functional aspects of the hypothalamus, neurovascular relationships, hypothalamo-hypophyseal portal circulation and target cells of the pituitary
- Suprahypothalamic structures and neuronal systems relevant to regulation of reproductive processes
- Site of production, biological action and control of secretion of oxytocin, vasopressin and neurophysin
- Biochemical basis of neuroendocrine action of neuropharmacology of agonists and antagonists
- Pineal gland, Blood–brain barrier
- Sex steroid-concentrating neurones
- Distribution and cellular characteristics of pituitary hormone-producing cells with special reference to gonadotrophe and lactotrophe
- Anatomical and functional aspects of the peptidergic and catecholaminergic system and their control of the 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 and pituitary hypopituitarism and disorders of over secretion of pituitary hormones
- Organic lesions and/or functional disorders of the hypothalamic–pituitary system
- Ectopic hormone syndromes

Adrenal function and disease states:

- 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 (e.g. Cushing hyperplasia, adenoma, carcinoma)
- Congenital adrenal hyperplasia
- Effects of aberrations of adrenocortical function on hypothalamo-pituitary-ovarian function
- Aldosterone and disorders of the rennin–angiotensin system
- Catecholamine disorders

Thyroid function and disease states:

- Thyrotrophin-releasing hormone, thyroid-stimulating hormone, thyroid physiology
- Diagnostic value of thyroid-stimulating hormone, thyroid hormones total and free, thyroid-stimulating immunoglobulins and related diagnostic tests
- Biosynthesis, control and metabolism of thyroid hormones
- 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
- Thyroid physiology in the newborn and identification of cases at high risk of neonatal thyrotoxicosis
- 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, hypothyroidism and hyperthyroidism

Ovarian function and disease states:

- 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 extraovarian control mechanisms
- Mechanism of protein/steroid hormone action in the ovary

- Regulation of hormone receptors
- Atresia and selection of the dominant follicle.
- 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)
- Ovarian pathology: Gross and microscopic findings
- Natural history of ovarian tumours in relation to reproductive function (e.g. 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)
- Different compartments of the Graafian follicle (e.g. granulosa cells, theca and adjacent stroma) and 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
- Gross and microscopic findings and the development of gonadal structures found in various forms of gonadal dysgenesis and disorders of sexual development

#### Menopause and premature ovarian failure

- Causes of premature ovarian failure, congenital endocrine disorders (e.g. Turner syndrome, complete androgen insensitivity syndrome, ovarian agenesis, polyglandularendocrinopathy and fragile X syndrome) and acquired (e.g. post-surgery, chemo/radiotherapy)
- Treatment options for young women with ovarian failure, with particular regard to future fertility

#### Puberty

- Normal sequence of pubertal changes in the female and male and their chronology
- Effects of hormones on bone growth and epiphyseal closure
- Hormonal changes and gametogenesis relative to the reproductive cycle from intrauterine life to the development of normal reproductive cycles (e.g., gonadotrophin secretion in the fetus and the neonate, sensitivity of the

feedback system during fetal and neonatal life and childhood; role of adrenal androgens)

### Immunology

- Mechanism of antibody response, including the origin and function of IgA, IgM, IgG, and IgE
- Origin and functions of T, B, helper, suppressor and natural killer cells
- Effect of active and passive immunization on hormonal specific target tissues
- Knowledge of auto-immune disease affecting reproduction
- Basic components of the immune system and their possible role in male and
  - female reproductive failure, recurrent abortion, infertility and contraception
- Place of immunological diagnostic procedures relating to infertility, fertility, gonadal failure and endocrine dysfunction

### ***Clinical competency***

- Take a history and perform an appropriate examination in patients with reproductive endocrinopathies.
- Perform and interpret dynamic endocrinological testing
- Formulate management plan related to endocrinological findings
- Implement plan of management and modify if necessary
- Select and manage appropriate treatment for PCOS
- Organise appropriate investigations of impaired glucose tolerance and discuss the use of insulin-lowering drugs
- Management of hyperandrogenism
- Diagnosis of causes of anovulation, such as syndromes of inappropriate prolactin secretion and central nervous system-hypothalamic-pituitary dysfunction.
- Be able to use ultrasound as a diagnostic tool. e.g. PCOS
- Offer and carryout rational diagnostic and therapeutic interventions in patients with amenorrhoea
- Discuss impact on future fertility and advise on hormone replacement in premature ovarian failure
- Liaison with fertility services
- Immunological investigations
- Interpretation of dual-energy X-ray absorptiometry bone scans



***Professional skills and attitude***

- Counsel patients sensitively about disease processes and impact on future fertility and long-term health
- Explain clearly and openly about treatments, complications and adverse effects of drug treatment
- Counsel patients sensitively about options available in endocrinopathies.
- Respect patient confidentiality
- Liaise effectively with colleagues in other disciplines, clinical and non-clinical

3. Psychology

***Knowledge criteria***

- Physiodynamics of normal psychosexual development and the establishment of the gender role through childhood, puberty and adulthood
- Normal and abnormal psychosexual function and gender disturbance
- Psychological factors in disordered male and female reproductive function
- Psychological changes associated with infertility and the impact on the family
- Psychological and endocrine changes associated with premenstrual syndrome and menopause.
- Principles of sexual counselling and modes of therapy

***Clinical competency***

- Identify couples with psychological problems related to infertility
- Identify couples with psychosexual issues
- Recognise psychological conditions leading to reproductive dysfunction
- Recognise patients with psychological problems due to menopause and premenstrual syndrome.

***Professional skills and attitude***

- Be sensitive psychological conditions that arise secondary to infertility, premenstrual syndrome and premature ovarian failure.
- Be sensitive to psychosexual dysfunction secondary to infertility and other reproductive conditions.
- Liaise with psychological services to manage couples with psychological problems.

## 4.Genetics

### ***Knowledge criteria***

#### General Concepts including Epigenetics

- Principles of Mendelian inheritance, pedigree, and linkage analysis
- Basis of genetic inheritance and transmission of genetic disease:
  - Single gene disorders: recessive and dominant
  - Sex-linked disorders
  - Late-onset disorders and disease susceptibilities
  - Chromosome rearrangements: Robertsonian reciprocal translocations and their consequences
  - Aneuploidy, sporadic aneuploidy and important aneuploidy syndromes (e.g. Edwards, Turner, Patau)
- Genetic basis of clinical syndromes, including chromosomal abnormalities with special reference to syndromes affecting sexual development and reproductive function of both the male and the female.
- Antenatal diagnosis of genetic abnormalities, including the indications and arrangements for specialized service for genetic diagnosis and counseling
- Relevance of genetics to male and female infertility, artificial insemination, and early pregnancy loss
- Mechanisms of mitosis and meiosis, including the effects of chromosome segregation
- Understand the principles underpinning
- The standard laboratory procedures associated with chromosomal preparation, identification, and current nomenclature

#### Molecular Biology

- Recombinant technology and its potential impact in medicine through the availability of purified proteins and improved diagnostic techniques
- Basic techniques of gene manipulation, including the use of restriction endonucleases and specific hybridization probes to isolate genes, the use of cloning vectors in gene propagation, the techniques of DNA sequencing and synthesis
- Potential application of rDNA technology in biology and medicine, with particular reference to rDNA probes for the diagnosis of genetic disease in adult and fetal medicine
- Engineering of transgenic organisms and their use as a source of human proteins and other reagents of pharmaceutical interest

***Clinical competency***

- Elicit a genetic history and provide appropriate counselling
- Interpret chromosome analysis reports and plan further action
- Understand the International System for Human Cytogenetic Nomenclature
- Offer Prenatal diagnosis where appropriate
- Understand the principles of Cell culture and processing
- Discuss and offer where appropriate preimplantation genetic diagnosis (PGD) and preimplantation genetic screening (PGS)

***Professional skills and attitude***

- Use available genetic services appropriately in management of couples.
- Work with clinical geneticists and other specialists in a multidisciplinary team as needed.
- Understand the limitations in interventions in dealing with genetic abnormalities in the local setting.

5.Andrology

***Knowledge criteria***

- Normal anatomy and development of the testis
- Physiology of the testis and spermatogenesis
- Hypothalamo-pituitary-thyroid axis function and assessment
- Semen analysis, endocrine profile and investigation of azoospermia
- Various stages of normal and abnormal spermatogenesis
- Gross and microscopic findings in testicular disease (e.g. teratoma, seminoma, Leydig and Sertoli cell tumours)
- Assessment and management of erectile dysfunction and abnormalities in ejaculation.
- Treatment options in male factor infertility: Endocrine therapy, gonadotrophin therapy
- Management options in obstructive azoospermia.

***Clinical competency***

- Take an appropriate history and examination of a subfertile male
- Arrange and interpret semen analysis

- Interpret endocrine profile of the male
- Investigation for azoospermia
- Formulate management plan related to pathological findings
- Counsel about sperm banking: pre-oncology treatment, before vasectomy
- Treatment in abnormal seminal fluid parameters; Endocrine therapy, Gonadotrophin therapy
- Discuss options of microsurgical epididymal sperm aspiration, percutaneous epididymal sperm aspiration
- Offer and interpret results of testicular biopsy

### ***Professional skills and attitude***

- Counsel patients sensitively about the disease process
- Implement plan of management and modify if necessary
- Liaise with colleagues in other disciplines, clinical and non-clinical
- Counsel patients sensitively about options available in irreversible azoospermia

## 6. General subfertility and assisted reproduction

### ***Knowledge criteria***

#### General subfertility

- Normal ranges in: semen analysis, endocrine profile: female, endocrine profile: male,
- Ovulation induction: anti-oestrogens, gonadotrophins, complications including Ovarian Hyperstimulation Syndrome (OHSS)
- Intrauterine insemination
- In vitro fertilisation (IVF).
- Intracytoplasmic sperm injection (ICSI)
- Gamete donation : Oocytes, Sperm

#### Uterine and tubal imaging and assessment:

- Hysterosalpingography
- Hysterosalpingo-contrast-sonography
- Saline sonohysterography
- Computed tomography (CT)/magnetic resonance imaging (MRI)
- Laparoscopy

### IVF and assisted reproduction

- Management options in different causes of infertility including assisted reproduction
- Stimulation protocols in In Vitro Fertilisation
  - Long gonadotrophin-releasing hormone (GnRH) agonist protocol
  - Short GnRH agonist protocol
  - GnRH antagonist cycles
- Endometrial preparation in frozen embryo replacement cycles :
  - natural cycle
  - HRT cycle
- Donor–recipient cycles in assisted reproduction.
- Cryopreservation of gametes and embryos.
- In vitro oocyte maturation
- Fertility preservation for cancer patients
- Pharmacokinetics and pharmacodynamics of drugs used in reproductive medicine
- Ovarian hyperstimulation syndrome (OHSS) and strategies to reduce the risk
- Management of complications including OHSS
- Use of ultrasound scanning in assisted reproduction; Follicular tracking, endometrial development, uterine abnormalities, ovarian pathology and early pregnancy assessment
- Principles of embryo replacement.
- The principles of counselling in assisted reproduction; Eg. Supportive, Implications, Therapeutic, Adoption, Legal aspects, Psychosexual
- An understanding on laboratory techniques used in assisted reproduction; Cell culture, Embryo culture, Assisted hatching, Polymerase chain reaction, DNA, RNA and protein amplification techniques, Culture systems, Blastocyst culture, Time-lapse imaging of embryo
- Code of practice and quality assurance in assisted reproduction
  - HFEA Code of Practice
  - Adverse incident reporting
  - Human Fertilisation and Embryology Authority (HFEA) laboratory inspection
  - Clinical Pathology Accreditation laboratory inspection
  - International Standards Office and quality management systems

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***Clinical competency***

- Take a history from subfertile couple
- Examination of subfertile couple:
- Arrange appropriate investigations
- Interpret semen analysis
- Interpret endocrine profile: female
- Interpret endocrine profile: male
- Undertake and interpret Uterine and tubal imaging: Hysterosalpingography, Hysterosalpingo-contrast-sonography, Saline sonohysterography, CT/MRI
- Ability to use and interpret chromosomal studies and karyotyping.
- Critical awareness of the limitations of investigative techniques in the evaluation of infertility
- Form appropriate management plans
- Carryout the various therapeutic interventions.
  - Ovulation induction: anti-oestrogens
  - Ovulation induction: gonadotrophins
  - Intrauterine insemination
  - IVF
  - IVF/ICSI
  - Oocyte donation
  - Sperm donation
- Counsel for donated gametes: Donated oocytes, Donated sperm
- Manage treatment cycles with :
  - Long GnRH protocol
  - Short GnRH protocol
  - GnRH antagonist cycles
- Manage Frozen embryo replacement cycles of:
  - natural cycle
  - HRT cycle
  - Donor–recipient cycle
- Appropriate use of Gamete freezing and Embryo freezing
- Fertility preservation cycles
- Carryout the procedures in assisted reproduction
  - Follicular tracking natural/stimulated

- Follicular tracking IVF
  - Endometrial development
  - Uterine abnormalities
  - Ovarian pathology
  - Early pregnancy assessment
  - Oocyte retrieval
  - Embryo replacement
  - Microsurgical epididymal sperm aspiration
  - Percutaneous epididymal sperm aspiration
  - Open testicular biopsy
- Carryout appropriate counselling
    - Supportive
    - Implications

### ***Professional skills and attitude***

#### **General subfertility**

- Ability to counsel patients sensitively about the options available including preferences and expectations
- Aware of legal aspects of counselling
- Liaise with counsellors and other colleagues
- Ability to respect patient confidentiality.
- Ability to explain clearly and openly about treatments, complications and adverse effects of drug treatment, such as OHSS
- Ability to formulate and implement plan of management, taking into account relevant ethical and moral considerations specific to the patient and modify if necessary.
- Ability to liaise effectively with colleagues in other disciplines, clinical and non-clinical (e.g. andrologists, endocrinologists, IVF centre team and urologists).
- Ability to counsel patients sensitively about options available and understand their preferences and expectations
- Ability to formulate management plan related to pathological findings
- Ability to implement plan of management taking into account relevant ethical and moral considerations specific to patients and modify if necessary

- Ability to liaise effectively with colleagues in other disciplines, clinical and non-clinical
- Ability to explain clearly about treatments, complications and adverse effects of treatment eg OHSS

## 7.Laboratory procedures

### ***Knowledge criteria***

- Methods and kinetics associated with the production, distribution, and metabolism of reproductive hormones Immuno and bioassay methodology for common reproductive steroid and protein hormones
- Receptor identification, function, and analysis
- Culture and maintenance of oocytes, fertilisation, and the preparation of embryo transfer
- Role of the micromanipulator in gamete handling
- Pre-implantation Genetic Diagnosis (PGD)
- Techniques of sperm analysis and the procedures associated with the isolation of motile spermatozoa
- Cryobiology associated with gamete and embryo preservation
- Basic molecular biology techniques, including oligonucleotide probes, in situ
- Hybridization, Southern, Western and Northern blotting, restriction fragment length polymorphism, polymerase chain reaction

### ***Clinical competencies***

- Ability to demonstrate the clinical indications for use of different laboratory procedures
- Demonstrate an understanding of indication for PGD.
- The ability to interpret results of a seminal fluid analysis and to decide on different insemination methods in a couple during an ART cycle.
- Demonstrate the ability to identify different cryopreservation techniques of gametes and embryos and to use them appropriately in an ART cycle.
- The ability to discuss the different molecular biology techniques used in ART cycles and to identify the appropriate techniques for a couple during treatment.

### ***Professional skills and attitude***

- The skills to lead a clinical setting including and ART laboratory in providing different laboratory procedures.
- Liaise with different categories of professionals such as embryologists and laboratory technicians in establishing and managing an ART laboratory.



- Be able to liaise with complementary specialities such as molecular medicine in carrying out investigations and treatment interventions related to ART.

## 8. Research

### ***Knowledge criteria***

- Hypothesis definition, experimental design, sampling techniques, data acquisition, data storage, selection of appropriate statistical analysis and scientific writing
- Appropriate application of statistical parametric tests, including unpaired and paired, T test, correlation, linear, and multiple regression analysis, and analysis of variance
- Appropriate application of non-parametric statistics
- The use of computers for data storage and statistical analysis
- How to compute means, standard deviations, and standard errors
- Significance, confidence intervals, type I and type II errors
- Epidemiological analysis, cohort and case control studies, assessment of bias, population parameters and sampling techniques
- Techniques of quality control in laboratory procedures
- Randomized controlled trials and techniques of meta-analysis
- Disease surveillance systems and disease registries
- Be familiar with and know the recent research publications on the subject
  - Current RCOG and NICE guidelines in reproductive endocrinology and infertility
  - The relevant Cochrane reviews
  - Significant published studies and trials in reproductive endocrinology and infertility

### ***Clinical competency***

- Critical analysis of a research publication
- Formulate hypothesis for research project
- Design and plan a research project
- Implement a research project to completion
- Analyse the data and present it at scientific meetings and publish in scientific journals.

### ***Professional skills and attitude***

- Keep updated on latest research publications
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- Seek gaps in knowledge that require research
- Ability to liaise with other experts in designs and implementation of research projects.

## 9. Clinical conditions

### ***Knowledge criteria***

- Uterine anatomy and histology:
  - normal anatomy
  - different types of congenital abnormalities, such as uterine septum, their impact on fertility and their management
  - impact and management of intrauterine adhesions
  - impact and management of fibroids, including medical, surgical and embolization
- Tubal anatomy and histology:
  - normal anatomy
  - different types of congenital abnormalities
  - management of proximal, mid-tubal and distal tubal disease
  - sterilisation and reversal of sterilisation
  - gross and microscopic findings of diseases of the oviduct related to reproductive endocrinology (e.g. acute and chronic salpingitis, granulomatous salpingitis, endometriosis)
  - natural history and clinical course of acute and chronic salpingitis and relate these to subsequent fertility
- Vaginal and cervical anatomy and histology:
  - gross and microscopic findings of endometriosis and adenomyosis
  - possible consequences of antenatal hormone exposure
  - effects of various hormones on the vagina and cervix
- Endometrial histology:
  - histological appearance of normal and abnormal endometrium
  - current data relating oestrogens with endometrial hyperplasia and adenocarcinoma
  - acute and chronic endometritis
  - developmental stages of the endometrium (dating)
  - endometrial factors that affect implantation in early pregnancy
- Myometrial histology:

- gross and microscopic findings of adenomyosis, leiomyoma and other myometrial lesions related to reproduction
- relationships of leiomyoma to infertility, including each of the different types (e.g. subserosal, intramural and submucosal)
- Ovarian anatomy and histology:
  - gross and microscopic findings and natural history of ovarian tumours related to reproductive function (e.g. 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)
  - different compartments of the Graafian follicle (e.g. granulosa cells, theca and adjacent stroma) and 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
  - gross and microscopic findings and the development of gonadal structures found in various forms of gonadal dysgenesis and intersex conditions
- Developmental disorders
  - Ambiguous genitalia
  - Disorders of sexual development
  - Complete androgen insensitivity syndrome
  - Endocrine disturbance
  - Precocious puberty
  - Delayed puberty
  - Congenital Adrenal hyperplasia
- Delayed puberty, indicating the differential diagnosis evaluation and appropriate therapy
- Sexual precocity, indicating the differential diagnosis, evaluation and appropriate therapy
- 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 (e.g. vaginoplasty, clitoridectomy and clitoral resection), indications and laparoscopic techniques for gonadectomy)

- PCOS
  - Diagnosis of polycystic ovary syndrome (PCOS):
  - Imaging of PCOS
  - Management of anovulation
  - Management of hyperandrogenism
  - (hirsutism, acne, alopecia)
  - Management of obesity, including an
  - understanding of long-term health risks, metabolic effects and cancer risks
  - Management of ovulation induction in PCOS: Dietary advice, Anti-oestrogens, Gonadotrophin therapy, Aromatase inhibitors, Ovarian diathermy
- Adrenal dysfunction: Cushing syndrome, Addison's disease, Adrenal hyperplasia
- Androgen disorders:
  - Production, physiology and metabolism of androgens in normal women
  - Mechanisms of action of androgens
  - Symptoms and signs of androgen excess together with any causes based on pathophysiology of androgen excess
  - 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
  - Relate PCOS to abnormal hormone production
  - Androgen-resistant states
  - Congenital and acquired adrenal hyperplasia in terms of aetiology, genital morphology, general metabolic effects and differentiate action and treatment
  - Management of androgen excess and of hirsutism
  - Pharmacology of anti-androgens

- Endometriosis
  - Pathogenesis and aetiology of endometriosis
  - Mechanisms by which minimal and mild endometriosis may impair fertility, e.g. defective folliculogenesis, ovulatory dysfunction, hyperprolactinaemia, autoimmune disorders, disturbances in the peritoneal fluid environment.
  - Diagnosis, staging/grading of disease and prognosis
  - Place of expectant management, medical and surgical treatment in the management of endometriosis
  - Role, possible benefits and potential adverse effects of pharmacological agents, e.g. oral contraceptives, progestogens, danazol, gestrinone, gonadotrophin-releasing hormone (GnRH) analogues, in the management of endometriosis
  - Place of assisted reproduction in the management of endometriosis
  - Effects on fertility
  - Multidisciplinary pain management
- Recurrent miscarriage
  - Causes
  - Investigations
  - Medical management
  - Surgical management

### ***Clinical competency***

- Endometriosis
  - Ultrasound assessment of pelvis
  - Surgical management: Diathermy to superficial disease, Excision of endometriosis, Removal of endometriomas, Treatment of rectovaginal disease
  - Medical management: Pharmacological Therapies, Progestogen therapy, including Intra-Uterine System, Combined oral contraceptive pill, GnRH analogues, Danazol
  - Specialist Pain Management Services
  - Psychological Support
- Recurrent miscarriage:
  - Take a history including pregnancy history, medical history
  - Organise appropriate investigations
  - Interpret endocrine assessment

- Interpret immunological assessment
- Formulate management plan
- Liaise with colleagues in other disciplines
- Counsel about: Causes of miscarriage, Treatments, Implications following molar pregnancy
- Perform Endocrine investigations, Anatomical assessment and Immunological investigations
- Manage clinical conditions such as Antiphospholipid syndrome, Uterine abnormalities

### ***Professional skills and attitude***

- Endometriosis
  - Ability to counsel patients sensitively about the options available
  - Ability to respect patient confidentiality
  - Ability to explain clearly and openly about treatments, complications and adverse effects of drug treatment
  - Ability to formulate and implement plan of management and modify if necessary
- Ability to liaise effectively with colleagues in other disciplines, clinical and non-clinical, e.g. colorectal surgeons, chronic pain team and radiologists
- Ability to counsel patients sensitively about the disease process
- Ability to formulate management plan related to pathological findings
- Ability to implement plan of management and modify if necessary
- Ability to liaise with colleagues in other disciplines, clinical and non-clinical
- Ability to counsel patients sensitively about options available and to refer to support groups as appropriate
- Ability to explain openly about treatments, complications and adverse effects of treatment

## 10. Clinical management

### ***Knowledge criteria***

- Reproductive surgery
  - Anatomical systems in relation to human reproduction
  - Role of endoscopic and open surgery in the treatment of fertility-related conditions, e.g. fibroids, endometriosis, hydrosalpinges and tubal disease

- Understand the principles underpinning the following techniques;
  - Operative biopsy of the lower reproductive tract
  - Cytology, endoscopy, laparoscopy, hysteroscopy with assorted techniques
  - Reversal of sterilization
  - Infertility surgery, including
  - Reconstruction of bicornuate or septate uterus
  - Myomata
  - Uterine synechiae
  - Cervical incompetence,
  - Reparative techniques for tubal and/or adhesive pelvic disease
  - Wedge resection of the ovaries
  - Ovarian cystectomy
  - Staging of endometriosis and surgical management
  - Place of laser surgery
  - percutaneous epididymal and surgical management
  - testicular sperm aspiration
  - Radiographic imaging associated with reproduction, including
  - Hysterosalpingography
  - Pituitary radiology
  - Arteriography
  - Arterial catheterization
  - Urography
  - Isotope imaging and ultrasound
  - Nuclear magnetic resonance and thermography
  - Dynamic endocrine testing and visual field examination
  - Surgery of development disorders, including neovaginal, vulva construction,
  - imperforate hymen, vaginal septate, Mullerian anomalies with obstruction of
  - drainage
  - Surgical techniques for the management of ambiguous genitalia
  - Indications and techniques for gonadectomy in the female
- Contraception and sterilisation

- Mechanism of action and complications of intrauterine contraceptive devices
- Indications, advantages, disadvantages, side effects, complications, and efficacy of traditional contraceptive methods
- Surgical techniques associated with male and female sterilization
- Techniques of interruption of pregnancy
- Potential of immunology for contraception
- Status of contraceptive research and its limitations
- Sterilisation reversal

***Clinical competency***

- Laparoscopic surgery
  - Diagnostic laparoscopy
  - Treatment of minimal/mild endometriosis
  - Treatment of ovarian endometrioma
  - Treatment of ovarian dermoid
  - Division of adhesions
  - Salpingectomy for hydrosalpinx
  - Salpingostomy
  - Salpingectomy for ectopic pregnancy
  - Salpingostomy for ectopic pregnancy
  - Laparoscopic myomectomy
  - Ovarian diathermy
- Hysteroscopic surgery:
  - Diagnostic hysteroscopy
  - Outpatient hysteroscopy
  - Resection of fibroid
  - Resection of polyp
  - Division of septum
  - Division of adhesions
- Open fertility surgery:
  - Myomectomy



- Other surgery:
  - Excision of vaginal septum
  - Imperforate hymen
  - Excision of rudimentary horn of uterus (laparoscopic resection)
  - Hysterectomy for severe endometriosis.
  - Percutaneous epididymal sperm aspiration
  - Microsurgical epididymal sperm aspiration
  - Open testicular biopsy
- Percutaneous epididymal sperm aspiration
  - Testicular sperm aspiration
- Surgery of development disorders, including neovaginal, vulva construction, imperforate hymen, vaginal septae, Mullerian anomalies with obstruction of drainage
- Surgical techniques for the management of ambiguous genitalia
- Indications and techniques for gonadectomy in the female

***Professional skills and attitude***

- Ability to counsel patients sensitively about reproductive surgery options available and their benefits, risks, success rates, patient's expectations of treatment and limitations of treatments
- Ability to respect patient confidentiality
- Ability to explain clearly and openly about treatments, complications and side effects of surgery
- Ability to formulate and implement plan of management and modify if necessary
- Ability to liaise effectively with colleagues in other disciplines, clinical and non-clinical

## 11. Professionalism and management

### ***Knowledge criteria***

- Understand the organizational responsibilities inherent in Reproductive Endocrinology and Infertility subspecialty practice
- Creating protocols for management
- Establishing and maintaining regional transport systems with appropriate patterns of referral
- Involvement in research advisory and ethics committees
- Participation in perinatal data collections systems
- Organization and co-ordination of clinical meetings

### ***Clinical competencies***

- Ability to develop and update clinical guidelines and management protocols for management of subfertility.
- Ability to critically appraise research projects and publications for research advisory committees and scientific journals.
- Analysis and presentation of clinical data and outcome data for monitoring and quality assurance processes.

### ***Professional skills and attitudes***

- Lead a clinical team with appropriate skill to achieve the goals and to maintain the standards of the system.
- Work as a team member in teams developing clinical guidelines and management protocols
- The ability to provide constructive criticism to people carrying out research in this subspecialist area.

## 12. Teaching

### ***Knowledge criteria***

- Understand the principles underpinning
- Facilitation of learning of patients, trainees, students and other health professionals
- Apprenticeship learning
- Provision of constructive feedback
- Assessment of performance according to set performance criteria

- Understand the use of vocabulary that encourages and acknowledges learning
- Understand the learning needs of oneself and others

### ***Clinical competencies***

- Ability to carry out teaching in different settings such as formal lectures, undergraduate teaching, postgraduate teaching and clinical teaching.
- Be able to decide and organise different teaching / learning activities to suit the teaching needs of the learners.
- The ability to carry out mentorship for trainees and provide proper feedback
- Design and organise assessment for different aspects of knowledge and competencies among undergraduate and postgraduate trainees.

### ***Professional skills and attitude***

- Ability to perform as a teacher and mentor to trainees at different levels
- Develop the skills of a teacher who can undertake teaching to maximise learning using up to date teaching / learning methods
- Ability to be an impartial examiner in setting up and carrying out assessments.

## **13.Ethics**

### ***Knowledge criteria***

- Understand the current Code of Ethical Practice as pertains to practice in reproductive endocrinology and infertility
- Understand and discuss the ethical and legal aspects of subspecialty practice in reproductive endocrinology and infertility, including;
  - Gamete storage and donation
  - Surrogacy
  - Fertility control
  - Termination of pregnancy
  - Fetal reduction
  - Pre-implantation diagnosis
  - Gene therapy
  - Research on embryo
  - Donation of fetal and ovarian tissue

- Relevant state and national legislation
- Roles and duties of ethics committees
- Roles and duties of NHMRC, FSA, and RTAC, and state-based Infertility
- NHMRC 'Ethical guidelines on the use of assisted reproductive technology in clinical practice and research'
- Know the current guidelines on termination of pregnancy
- Understand special implications for women's health services with respect to women of diverse cultural backgrounds, including indigenous women and those with various spiritual beliefs, sexual orientations, lifestyles, beliefs, ages, social status and perceived economic worth.
- Understand and respect the ways in which culture impacts on women's reaction to pregnancy, obstetric and gynaecological disorders and recommended treatments.
- Have an awareness of the general beliefs, values, behaviours and health practices of particular cultural groups and how these are applied in a clinical situation.

***Clinical competencies.***

- Be able to use the appropriate ethical principles in clinical practice in management of patients
- Be able to address ethical dilemmas among patients undergoing different treatment modalities for infertility
- Be able to ethical evaluate different clinical situations and provide expert opinions to expert committees and organisations seeking such advice.
- Be able to develop ethical guidelines for the practice of ART

***Professional skills and attitude***

- Be able to maintain ethical principles in management of patients undergoing treatment of infertility
- Ability to discuss ethical concerns in care of patients with infertility with medical and non-medical professionals
- Be able to liaise with other professionals such as sociologists in developing ethical guidelines and practices for treatment of infertility.

## **ANNEXURE 4 - Guidelines for preparation of clinical audit reports**

The Clinical audit is an activity that has been defined as “a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria. Where indicated, changes are implemented. Further monitoring is used to confirm improvement in health care delivery” in Principles of Best Practice in Clinical Audit (2002, NICE/CHI). The process facilitates learning and helps to evaluate the benefits and pitfalls of selected management options.

The main stages of the clinical audit process are:

- 1) Selecting a topic.
- 2) Agreeing standards of best practice (audit criteria).
- 3) Collecting data.
- 4) Analysing data against standards.
- 5) Feeding back results.
- 6) Discussing possible changes.
- 7) Implementing agreed changes.
- 8) Allowing time for changes to embed before re-auditing.
- 9) Collecting a second set of data.
- 10) Analysing the re-audit data.
- 11) Feeding back the re-audit results.
- 12) Discussing whether practice has improved.

The audit plan has to be approved by the BOS prior to commencement of the clinical audit cycle.

**The number of audits: Two (2)**

**The length of the report:**

An audit report shall be of a maximum of 1000 words.

**Time lines:**

All Audit Reports must be submitted to the PGIM for evaluation at least one month before the completion of the post MD training programme. Trainees are expected to formally present the audit findings at the hospital meetings where the work is done and obtain documentary evidence of such presentation. Trainees are encouraged to submit the Clinical Audit Reports as and when they complete them during the training programme.

**Assessment:**

Two examiners appointed by the BOS shall assess the audit reports. They should independently assess and subsequently arrive at a consensus as to whether the reports are accepted or not. At least one of the audit reports shall be based on a complete audit cycle. In the event the reports are not accepted written feedback

should be given to the trainee on how to improve the reports. Based on this feedback the trainee shall resubmit the reports within six weeks.

**Implication of assessment:**

Acceptance of the two audit reports is a prerequisite to be eligible to appear for the pre board certification assessment (PBCA).

## **Annex 5 Portfolio and Pre-Board Certification Assessment (PBCA)**

The PBCA is to assess whether the trainee has acquired the following broad outcomes to function as specialist in the chosen subspecialty.

- Subject expertise
- Teaching
- Research and audit
- Ethics and medico-legal issues
- Information technology
- Life-long learning
- Reflective practice

### **Assessment tool**

The PBCA should be based on assessment of a portfolio maintained by the trainee during the period of post-MD training. The contents of the portfolio should encompass all of the above learning outcomes and contain evidence of achievement of these outcomes by the trainee. Although some of these may have been evaluated before the MD examination, the portfolio assessed at the PBCA should mainly contain evidence of achievements during post-MD training, either locally or overseas. All sections need not be of equal weight – for example, the section on Subject Expertise may be much more detailed than the others.

### **Contents of portfolio**

The contents of the portfolio should be divided into sections according to the outcomes stated above, followed by a final section that contains evidence of reflective practice.

The following list sets out the type of evidence that may be relevant to each section. The details are to be determined by Board of study in Psychiatry.

1. Subject expertise:
  - Progress reports from supervisors on professionalism and skills, competencies and knowledge achieved in subspecialty
  - Supervisor feedback on communication skills
  - Log of procedures carried out and competence levels achieved
  - Results of work-place based assessments conducted
  - This section must include evidence that the trainee has acquired during the training including the essential knowledge, skills and competencies related to the subspecialty, identified by the trainer, and monitored with regular assessments throughout the period of post-MD training, e.g. Extended cognitive assessments, Administration of clinical test batteries, Case-Based Discussions, Direct Observation of Practical Skills
2. Teaching and dissemination of knowledge
  - undergraduates

- postgraduates
  - ancillary health staff
  - service users, families and carers
3. Research and Audit relevant to the subspecialty
    - Dissertation
    - Research papers published or accepted for publication
    - abstracts of presentations
    - Clinical audit
  4. Ethics and Medico-legal Issues
    - Completed Professionalism Observation Forms (from integrated learning component of Professionalism Strand)
    - Completed PTR during post-MD training
  5. Information Technology
    - Participation in training programmes / workshops
    - Evidence of searching for information and application of findings in practice
  6. Life-long learning
    - Participation in conferences and meetings
  7. Reflective practice
    - Narration of at least one learning event experienced by the trainee, in relation to each of the above outcomes, with reflection on what and how the trainee achieved from this experience.

### **Portfolio assessment**

The portfolio should be reviewed at least every 6 months by the trainer/supervisor, with regular feedback to the trainee on how the portfolio may be improved. When the trainee is eligible for PBCA, three copies of the completed portfolio should be submitted to the PGIM Examinations Branch.

The PBCA should take the form of a final, summative assessment of the trainee's portfolio (desk review), carried out by two (2) independent examiners appointed by the Board of Study and approved by the Senate of the University of Colombo. The trainee should be called for an oral examination and shall be questioned on the portfolio.

The overall assessment should be based on each of the main sections, which should be assessed using the format given in [Annex 7](#).

If the examiners are of the view that the trainee's performance is unacceptable, the examiners must provide written feedback on how the portfolio should be improved in order to counsel the candidate. The trainee should then re-submit the portfolio within three (3) months, and face another PBCA based on the re-submitted portfolio. If the trainee is successful at this attempt, the date of Board Certification shall not be affected. If unsuccessful again, the date of Board Certification will be the date of



passing the subsequent PBCA following further training for a period of six months in a unit selected by the Board of Study.

The successful candidate shall be required to make a presentation of 10 – 15 minutes to the BOS, on the post-MD training.

**ANNEXURE 6 - Progress Report on Trainees – Post MD Training**

Specialty:

Name of Trainee:

Period of Training:

Hospital and Unit:

Name of the Supervisor:

**Marking Guide: Excellent (5) ≥70, Very good (4) =60-69%, Pass (3) =50-59%, Borderline (2) =40-49% Fail (1) = < 40 %**

An overall minimum grade of a “Pass” is required for acceptance of the progress report.

Please use the portfolio maintained by the trainee and a combination of work place based assessments such as multisource feedback (MSF), objective structured assessment of technical skills (OSATS), mini-clinical evaluation exercise (Mini-CEX), direct observation of procedural skills (DOPS), case-based discussions (CbD), acute care assessment tool (ACAT), patient survey (PS), audit assessment and teaching observation to arrive at your judgment.

**It is essential that justification/reasons are stated if a mark of excellent or poor is given.**

	Grade (1 to 5)	Justification/Reasons
Theoretical knowledge		
Clinical decision making		
Clinical skills		
Operative skills		
Ability to cope with emergencies and complications		
Thinks independently and rationally		
Seek appropriate consultations		
Ability to follow instructions		
Quality of documentation		
Dedication to work		
Professional attitudes		
Reliability		
Availability/punctuality		
Communication skills		
Doctor-patient relationship		
Relationship with colleagues		
Relationship with other staff		
Supervises and help juniors		
Teaching of medical students/junior staff		

**Please provide comments and feedback for improvements to the trainee.**

**Signature of the Supervisor:**

**Date:**

## **Annex 7 Format of the Pre Board Certification Assessment (PBCA)**

### **Marking Scheme for Pre Board Certification Assessment**

A pair of examiners shall conduct the Pre Board Certification Assessment upon completion of the Post MD training and award marks independently.

#### **a. Portfolio desk evaluation (Total Marks 250)**

1. Log of Procedures carried out	75
2. Reflective Practice	100
3. Teaching	25
4. Ethics and Medico-legal Issues	25
5. Professional Development	25

#### **b. Portfolio Viva (Total Marks 150)**

1. Log of Procedures carried out	25
2. Reflective Practice	25
3. Teaching	25
4. Information Technology	25
5. Ethics and Medico-legal Issues	25
6. Professional Development	25

To Pass the PBCA a candidate shall obtain 60% (240 marks) or more out of the Total 400 Marks.

The successful candidate shall make a 10 – 15 minutes oral presentation acceptable to the Board of Study regarding the post-MD training and future vision regarding improvement of quality of patient care/diagnostic services in Sri Lanka.

Upon satisfactory completion of the PBCA candidates shall be recommended for board certification as a subspecialist in the chosen subspecialty.

## **ANNEXURE 8 - Recommended reading resources**

### **Recommended resources in Gynaecological Oncology**

#### **Journals**

1. Clinical oncology
2. Obstetrics and Gynaecology
3. Gynaecological oncology
4. Synopsis of gynaecological oncology
5. European Journal of Gynaecological oncology
6. British Journal of Oncology
7. Annals of clinical oncology
8. Journal of International gynaecological cancer society

#### **Books**

1. Atlas of gynaecological oncology Investigation and surgery J. Richard smith, John Monaghan
2. Bonnies gynaecological surgery by John Monaghan
3. Surgical gynaecological oncology by Burghadt
4. Berek and Hacker's gynaecologic oncology by Jonathan S. Berek, Neville F, Hacker

### **Recommended resources in Subfertility**

#### **Books**

1. Adam H Balen. Current Management of Polycystic Ovary Syndrome (Royal College of Obstetricians and Gynaecologists Study Group). ISBN: 978-1906985417. Publisher Cambridge University Press 2010
2. Adam H Balen. Infertility in Practice; 4 edition. CRC Press 2014
3. Botros R. M. B. Rizk. Ultrasonography in Reproductive Medicine and Infertility. ISBN: 9780521509763. Publisher: Cambridge University Press 2010
4. Gardner David K, Rizk, Botros R. M. B., Falcone Tommaso. Human Assisted Reproductive Technology: Future Trends in Laboratory and Clinical Practice. ISBN: 9781107606173. Publisher: Cambridge University Press 2012
5. Joyce Harper. Preimplantation Genetic Diagnosis. ISBN: 9780521884716. 2nd Edition. Publisher: Cambridge University Press 2009
6. Marc Goldstein, Peter N. Schlegel. Surgical and Medical Management of Male Infertility. ISBN: 9780521881098. Publisher: Cambridge University Press 2013
7. Patrick J. Rowe Frank H. Comhaire Timothy B. Hargreave Ahmed M. A. Mahmoud. WHO Manual for the Standardized Investigation Diagnosis and Management of the Infertile Male. ISBN: 9780521774741. Publisher: Cambridge University Press 2000.
9. Sharon N. Covington, Linda Hammer Burns. Infertility Counseling: A

Comprehensive Handbook for Clinicians. ISBN: 9780521619493.

Publisher: Cambridge University Press

10. The Subfertility Handbook: A Clinician's Guide. 2<sup>nd</sup> edition. Cambridge University Press; 2010
11. Tommaso Falcone. Clinical Reproductive Medicine and Surgery. 2nd ed. ISBN: 1489997962. Springer 2013.

### Journals

1. Fertility and Sterility: [www.fertstert.org](http://www.fertstert.org)
2. Reproduction (Journal of the SRF): [www.reproduction-online.org](http://www.reproduction-online.org)
3. Human Reproduction: [www.humrep.oxfordjournals.org](http://www.humrep.oxfordjournals.org)
4. Human Reproduction Update: [www.oxfordjournals.org](http://www.oxfordjournals.org)
5. Journal of Endocrinology: <http://joe.endocrinology-journals.org>
6. Reproductive Bio Medicine (RBM) Online: [www.rbmonline.com](http://www.rbmonline.com)
7. British Medical Journal: <http://group.bmj.com/products/journals>
8. ESHRE Monographs: <http://eshremonographs.oxfordjournals.org>
9. The Lancet: [www.thelancet.com](http://www.thelancet.com)
10. Medical Journal of Australia: <http://www.mja.com.au>
11. New England Journal of Medicine: <http://content.nejm.org>
12. MHR Basic Science of Reproductive Medicine:  
<http://molehr.oxfordjournals.org>
13. Human Molecular Genetics: <http://molehr.oxfordjournals.org>

### Websites

1. Fertility Society of Australia (FSA): [www.fertilitysociety.com.au](http://www.fertilitysociety.com.au)
2. European Society of Human Reproduction and Endocrinology (ESHRE):  
[www.eshre.eu](http://www.eshre.eu)
3. American Congress of Obstetricians and Gynecologists (ACOG):  
[www.acog.org](http://www.acog.org)
4. American Society for Reproductive Medicine (ASRM): [www.asrm.org](http://www.asrm.org)
5. Royal College of Obstetricians and Gynaecologists (RCOG): [www.rcog.org.uk](http://www.rcog.org.uk)
6. Society for Reproductive Endocrinology and Infertility (SREI): [www.socrei.org](http://www.socrei.org)
7. Society for Reproduction and Fertility (SRF): [www.srf-reproduction.org](http://www.srf-reproduction.org)