UEMS – OB/GYN SECTION

EUROPEAN BOARD AND COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS (EBCOG)

AND

EUROPEAN SOCIETY OF HUMAN REPRODUCTION AND EMBRYOLOGY (ESHRE)

SUBSPECIALIST TRAINING PROGRAMME IN REPRODUCTIVE MEDICINE

SYLLABUS

ATCRM WORKING GROUP

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Introduction

The proportion of people seeking fertility treatment has been constantly increasing worldwide due to changes in socio-economic factors, postponed planned conception and a consecutive decline in fertility with aging. With the development of modern medically assisted reproduction (MAR) and scientific advances in the field, fertility treatment has become more successful and available, with steadily increasing number of IVF cycles in Europe to more than 1 million per year and more then 200 000 children born annually, according to the latest European Society of Human Reproduction and Embryology (ESHRE) European IVF Monitoring Programme (EIM) reports.

The management of people seeking fertility treatment and use of MAR needs a multidisciplinary approach and requires specialist training in several diverse disciplines such as endocrinology, andrology, reproductive surgery, genetics, embryology, early pregnancy, ultrasound imaging, fertility preservation and psychology.

The European Board and College of Obstetrics and Gynaecology (EBCOG) in cooperation with ESHRE have collaborated over many years to support the widespread development of subspecialty practice in Reproductive Medicine and such that reproductive medicine has been recognised as a subspecialty in Europe by the Union of European Medical Specialists in 2017 (UEMS). Recognising diversity across education programmes and differing training standards among European countries in the field of reproductive medicine, EBCOG and ESHRE have attempted to harmonise training standards across Europe and optimise reproductive health care by defining the standards in specialist education of reproductive medicine.

Assuming that basic Ob&Gyn training has been done as specified by EBCOG and PACT (Project For Achieving Consensus in Training), Reproductive Medicine (RM) subspecialty training will commence after successful completion of basic training.
Educational objectives and requirements for training in these subspecialist areas have been defined with acknowledged experts from ESHRE.
Completion of the Training Syllabus and the Fellow logbook describes the minimum requirements and number of procedures necessary during training to acquire competencies in specific skills. This document will be revised every 5 years.

The role of a RM subspecialist achieving the specific competence is complementary and not competitive to the specialist in Obstetrics and Gynaecology, it is one step more in the educational road map.

1 Aims and Objectives

1.1 Reproductive Medicine subspecialist definition

The Reproductive Medicine subspecialist is a specialist in Obstetrics and Gynaecology who has had theoretical and practical training in all aspects of reproductive endocrinology, medical and surgical management of fertility treatment. Comprehensive management of these problems includes diagnostic and therapeutic procedures, audit of outcome, imposing quality control and optimal care in Reproductive Medicine.

1.2 Aim

Aim of the training is to improve the care of patients with disorders of reproductive function in collaboration with other care providers and harmonising training minimum standards throughout Europe.

1.3 Objectives of training

At the end of the training subspecialist should have:

- competence in diagnostics and treatment of reproductive endocrinology and fertility.
- Clinical knowledge, specific skills with audit of practice.
- Teaching experience, research, publication, and presentation experience.
- Ability to coordinate team working and promote collaboration in organising the service, management, and clinical governance.
- Knowledge of certification, quality, and safety control.
- Required competencies to run an independent and safe clinical practice.

1.4 Organisation

- The training programme should be organised according EBCOG/ESHRE Reproductive Medicine Training and lead by Reproductive Medicine subspecialist.
- The training programme delivered by the centre should be *in a multidisciplinary organisation that* ***provides all training modules in-house or outsourced****.*
- Stand-alone training centres should demonstrate clear evidence and documentation of collaboration that allows completion of training modules.
- For outsourced part of training structured programme should be applied and Tutor appointed.
- The training Centre should use guidelines and protocols finalised by National professional bodies reviewed at regular intervals or in case there is none, applicable ESHRE guidelines and recommendations.

- Training as a subspecialist in Reproductive Medicine does not imply an exclusive activity in that field. Fellow could be involved in other activities as long as this don't affect RM training and education.
- The number of training posts should reflect the activity of the unit and the number of trainers available.

2 Criteria for training

2.1 Entry requirements

A recognised specialist qualification in basic Obstetrics & Gynaecology should enter following requirements.

- An adequately remunerated post in a recognised training programme is a basic condition. Each Fellow must have an appointed Tutor for guidance and advice.

- Training should be directed towards achieving competence. Fellows could participate in other clinical areas.

- Arrangements for postgraduate training must be compatible with National employment legislation in relation to remuneration, hours of work and rights of employees in such matters as sick leave, maternity and paternity leave and compulsory military service.

- Duration of training: Duration of subspeciality training should include ***a minimum of two years and a maximum of three years*** in an approved programme and should cover the clinical and research aspects of the following areas.

2.2 Training modules

1. Reproductive endocrinology (general and gynaecological endocrinology).
2. Medical Assisted Reproductive (MAR) procedures.
3. Laboratory (embryology and genetics).
4. Andrology.
5. Reproductive surgery.
6. Early pregnancy and Implantation.
7. Fertility preservation.

The following areas should be included in the training modules and be accessible to the Fellow during training:

- Research.
- Ethics and law.
- Administration and leadership.
- Communication skills.
- Counselling.

Training should be structured throughout with clearly defined targets to be met after specified intervals. A structured and personalised educational plan should be drawn up between the Tutor and the Fellow at the beginning of training. Monitoring should be by face-to-face meetings at least twice a year. The meeting should be recorded in the logbook.

A Fellow may need to spend time in another Centre towards completion of training. Cooperating Centres should provide a Memorandum of Understanding (MoU) that clearly defines the roles and responsibilities with the dedicated Tutor for this relevant area of expertise and structured training for time out of main programme.

3 Assessment of training

3.1. Approval of institutions as training Centres should be based on the following general and special requirements provided that they do not conflict with National laws.

3.2. ESHRE assessment of training should be performed by request of the Centre every 5 years unless otherwise specified.

3.3. Assessment of the Fellow should be carried out by a National or federal committee of experts if this exists, in other cases director of training programme or Tutor should perform Fellow assessment and would take into consideration:

- Completion of the Logbook of clinical experience in Reproductive Medicine.
- Participation in Reproductive Medicine courses particularly those organised by EBCOG and ESHRE.
- Peer review publications in Pubmed indexed journals.

4 Requirements for Subspecialty Training Centres

To be eligible for subspecialty training a Centre must:

1. Provide a service for the referred and transferred patients who would benefit from subspecialty facilities, expertise, and experience.

2. Have established close collaboration with related disciplines to provide the high degree of teamwork and concentration of resources for the intensive investigation and management of such patients.

3. Have established close collaboration with other obstetricians and gynaecologists and related specialists within and outside the Centre, including major roles in continuing postgraduate education and training, research advice and networking and audit.

4. Have an adequate workload providing a full range of experience in the subspecialty; alternatively, two or more Centres may combine to provide a programme with all the required experience.

5. Have a programme director who will coordinate the training programme, accept the main responsibility for its supervision and be actively involved in it; when more than one Centre provides the programme, there must be a supervisor at each centre, with one having overall responsibility as director. Directors and supervisors will be consultants with special experience in the relevant subspecialty field, and with the future development of subspecialisation the directors and supervisors will themselves be trained subspecialists. If the programme director changes, the programme the training Centre will be revisited.

6. Have adequate medical staffing to enable the Fellow to be engaged in his/her subspecialty field (or in the case of a part-time Fellow, during all of his/her normal working hours); participation in emergency and on-call work outside normal working hours is not excluded.

7. Have library, laboratory and other resources to support subspecialty work, training and research.

8. Have appropriate clinical facilities for investigating the relevant endocrine and infertility disorders, have an established MAR programme, provide training in laparoscopic and hysteroscopic surgery, male infertility.

9. Have a research programme in the subspecialty field with access for the Fellow to support his or her own training programme including design and preferably participation in ethically approved trials and studies.

5 Reproductive Endocrinology

Aim

The Fellow should be able to discuss and explain:

- How reproductive hormones are produced, metabolised and their mechanism of action.
- Embryology, development and physiology of ovary, uterus and endometrium.
- The regulation and disturbances of the ovarian and menstrual cycle.
- Follicular recruitment, follicle selection, ovulation cascade, corpus luteum formation and luteolysis.
- Pre-menstrual syndrome (PMS).
- Ovarian aging and insufficiency including premature ovarian insufficiency (POI).
- The relevance of adrenal functions in relation to reproductive physiology and disorders.
- The relevance of thyroid for reproduction and pregnancy.
- The relevance of lifestyle and environmental factors, including obesity, for reproductive functions.
- Normal and abnormal sexual development.
- Normal and abnormal growth and pubertal development.
- Endocrine activity of peri and post-menopausal ovary.
- Hormonal contraceptive methods.
- Endocrine disrupting compounds (EDC) and effect on reproduction.
- Gender identity and gender transition.
- Impact of non-pharmacological and pharmacological management of obesity on MAR and pregnancy outcome.

Objectives

The Fellow should be able to:

- Assess ovulatory function, to perform differential diagnosis of oligo-anovulation, to provide management for different etiologies of oligo-anovulation.
- Perform diagnostic work up and management of polycystic ovarian syndrome including infertility as well as endocrinologic, metabolic, psychological, dermatologic and oncologic concerns.
- Perform a differential diagnosis and manage androgen excess.
- Assess and manage prolactin disorders.
- Independently manage ovulation induction.
- Assess ovarian reserve and interpret the results.
- Perform diagnostic work up of amenorrhea and manage amenorrhea due to different

etiologies.

- Perform diagnostic work up and management of abnormal uterine bleeding with non-surgical and surgical methods.
- Organise and interpret tests results including endocrine assessment, immunological investigations and genetic testing in POI.
- Counselling on the treatment options for young women with POI, including advantages and disadvantages, risks and benefits of hormone replacements therapy (HRT).
- Provide counselling, management and psychologic support for women with POI.
- Explain menopausal transition, provide comprehensive counselling to perimenopausal and menopausal women including screening services, lifestyle and nutrition recommendations, risks and benefits of hormone treatment and non-hormonal alternatives.
- Manage medical disorders that affect reproduction.
- Counselling the patients regarding all types of contraception.

ESHRE Guidelines
POI: https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Management-of-premature-ovarian-insufficiency
PCOS: https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Polycystic-Ovary-Syndrome

5.1 Paediatric and Adolescent Gynaecology

Aim

The Fellow has knowledge of changes happening around puberty and be able to discuss and/or has exposure to management of:

- Precocious and delayed puberty.
- Menstrual disorders in adolescence e.g. Menorrhagia, Dysmenorrhoea, Oligomenorrhoea and Primary as well as Secondary amenorrhoea.
- Mullerian abnormalities.
- Disorders of sexual development.
- Prepubertal labial adhesions.

Objectives

The Fellow can assess those presenting during pre-puberty and adolescence and is able to:

- Take an age-appropriate history and do appropriate systematic and Gynaecological clinical examination including pubertal status (Tanner stage).
- Appropriately manage the consultation when the child has understanding difficulties and or complex needs.
- Ensure the appropriate involvement of carers or family members.
- Organise appropriate investigations to include hormone profile, ultrasound assessment and interpret test results.
- Understand the principles of competence, capacity, confidentiality and consent.
- Counsel on the impact of the diagnosis on long-term fertility.
- Inform patients about support networks of relevant conditions.
- Discuss treatment options of relevant conditions.
- Recognise the indicators of child sexual abuse and refer appropriately.
- Recognise practical and legal issues arising from female genital mutilation in children and young women.
- Perform examination of the shortened vagina and assess and provide advice on vaginal management therapy.
- Use multidisciplinary approach with appropriate liaison with relevant specialities e.g. paediatric urologist, paediatric and adult endocrinologist.

The Thessaloniki ESHRE/ESGE consensus on diagnosis of female genital anomalies.
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Diagnosis-and-classification-of-Genital-Anomalies

6 Infertility diagnosis and therapy including Medical Assisted Reproduction (MAR) procedures

Aim

At the end of training the Fellow should be capable of safe and independent practice specifically MAR procedures.

The fellow should be able to discuss and provide clear communication and explanation of:

- Indications for MAR.
- Pretreatment assessment, including routine preconception assessment, to optimise MAR outcomes.
- Relevance of serum levels of sex steroids and gonadotropins during ovarian stimulation.
- Etiology of semen analysis abnormalities and counsel patient appropriately.
- Assessment of male including required endocrine, genetic and physical.
- Medical and legal requirements by the competent authority for a MAR practice.
- The medical and legal requirements for cryopreservation of gametes, embryos and reproductive tissues.
- Surgical and non-surgical methods of sperm retrieval for MAR, i.e., pTESA, (micro) TESE, sperm retrieval from post ejaculate urine, transrectal electro stimulation.
- Principles of cryobiology relevant for MAR and expected cryosurvival rates for gametes, embryos and reproductive tissues.
- Understanding of what is cumulus oocyte complexes (COCs) in follicular fluid, COC denudation methods, different methods of oocyte in vitro fertilisation, assessment of fertilisation and in vitro embryo development, including cleavage and blastocyst stage morphologic grading systems.
- Embryo biopsy procedures for preimplantation genetic testing and their potential impact on embryo development and potential.
- Available technologies for preimplantation genetic testing for aneuploidy with relative advantages and limitations.
- Indications for in vitro fertilisation vs intracytoplasmic sperm injection.
- Relative advantage and disadvantages of fertilisation methods, IVF vs ICSI.
- Counselling of patients regarding indications, risks and benefits of preimplantation genetic testing for aneuploidy.
- Indications for preimplantation genetic testing for monogenic and/or structural rearrangement disease.
- Obstetric and perinatal outcomes of pregnancies and children conceived with MAR.
- Psychological aspects of the diagnosis of infertility, undergoing MAR, and possible failures

on patients.
- Pharmacokinetics and pharmacodynamics of prescribed drugs in MAR procedures.

Objectives

The Fellow should be competent to perform independent clinical practice:

- Construct an ovarian stimulation protocol tailored to the individualised care leading to a MAR procedure, i.e., oocyte or embryo cryopreservation, fresh embryo transfer, planned freeze all cycle, etc.
- Monitor response to ovarian stimulation by ultrasound and/or biochemistry.
- Identify patient at risk of ovarian hyperstimulation syndrome before and/or during ovarian stimulation.
- Know/apply methods to decrease the risk of ovarian hyperstimulation syndrome.
- Perform oocyte retrieval through transvaginal route for the patient.
- Perform transcervical embryo transfer procedure under ultrasound guidance.
- Know alternative routes of oocyte retrieval and embryo transfer.
- Know the contraindications for a fresh embryo transfer.
- Know endometrial preparation protocols for frozen thawed embryo transfer or embryos produced in non-stimulated cycles, i.e., fresh embryo transfer with donor oocytes / with priorly frozen thawed own oocytes.
- Know luteal support requirements and protocols based on ovarian stimulation and endometrial preparation protocol in fresh and frozen embryo transfer cycles, respectively.
- Know, identify, and manage complications of ovarian stimulation, i.e., ovarian hyperstimulation syndrome, bleeding, infection, ovarian torsion.
- Counsel patients regarding risks of multiple pregnancy and multiple embryo transfers.
- Know ethical and psychological aspects of third-party reproduction cycles for all parties involved.
- Refer patients for psychological assessment/support where indicated.

ESHRE guidelines on ovulation stimulation for IVF/ICSI (2019).
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Ovarian-Stimulation-in-IVF-ICSI

ESHRE guidelines on number of embryos to transfer (2023).
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Embryo-transfer

ESHRE guidelines on unexplained infertility (2023).
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Unexplained-infertility

ESHRE guidelines: Recommendations for good practice in Ultrasound: Oocyte retrieval
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/USS-practice-in-ART

7 Laboratory (Embryology and Genetics)

Aim

The Fellow should understand and be able to discuss the following topics from gametogenesis, fertilisation, embryo development:

- Gametogenesis from embryonic stage to adult, including various pathologic situations deriving from developmental, genetic or environmental factors.
- Physiology and pathophysiology of fertilisation process and types of abnormal fertilisation.
- Preimplantation embryo development and developmental disorders.
- Meiotic and mitotic irregularities in gametes and early embryos.

The Fellow should understand and be able to discuss the following topics from reproductive genetics:

- Normal genetics (e.g. genotype and phenotype, basic Mendelian inheritance patterns, the structure and identification of chromosomes).
- Abnormal genetics including chromosomal abnormalities (numerical, structural), monogenic diseases, mutations, copy number variations, genetically transmitted abnormalities of sexual development (e.g, hermaphroditism, Turner's syndrome.
- Inherited, non-reproductive disorders referrable to reproduction (e.g., congenital adrenal hyperplasia, diabetes mellitus).
- Genetic analyses including pedigree, karyotype analysis, antenatal diagnosis of genetic disease, use of gene probes, fluorescent in-situ hybridisation, array comparative genomic hybridisation, next generation sequencing and associated techniques, indications and arrangements for specialised genetic diagnosis and counselling.
- Genetic causes of infertility and early pregnancy loss.
- Genetic aspects of artificial insemination and assisted fertilisation.
- Genetic counselling.

A Fellow should complete training by following the work in an MAR laboratory and understand the following principles:

- Role of MAR laboratory equipment.
- Role of different embryo culture systems.
- Laboratory preparation of gametes for fertilisation and different artificial insemination

techniques.

- Advantages and risks of short versus prolonged embryo culture.
- Gamete and embryo scoring based on morphology, morpho dynamics and genetic testing.
- Embryo selection criteria for transfer, cryopreservation, biopsy, and other procedures.
- Cryopreservation of gametes, tissues, and embryos and cryobanking.
- Embryo biopsy and preimplantation genetic testing for aneuploidies (PGT-A), chromosomal structural rearrangements (PGT-SR) and genetic mutations (PGT-M).
- Distinguish between evidence based and non-evidence based laboratory methods of MAR.
- Quality assurance according to the EU Directives / Regulation / on setting standards of quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution (including import and export in/out of the EU) of human tissues and cells intended for human application.

A Fellow should be able to independently assess, counsel and manage individuals and couples requiring various laboratory MAR methods with all possible extensions such as treatments with donor gametes/embryos, surrogacy, (if applicable in the country) pre-implantation genetic testing and fertility preservation.

A Fellow should be able to discuss for:

- Different sperm collection methods (ejaculation, split ejaculation, retrograde ejaculation, PESA, TESA, TESE).
- Oocyte collection methods (oocyte pick-up, ovarian tissue biopsy).
- In vitro gamete transport.
- Various fertilisation procedures (IUI, IVF or ICSI).
- In vitro oocyte maturation.
- Donor oocytes and sperm in relation to serological tests (different handling and storage).
- Laboratory treatment options in cases of total fertilisation failure after IVF and ICSI or embryo developmental arrest.
- Preimplantation genetic testing of embryos for aneuploidies (PGT-A), chromosomal structural rearrangements (PGT-SR) and monogenic diseases (PGT-M).
- Recommendations upon transferring embryos after PGT.
- Number of embryos to be transferred. According to the recent document on the number of embryos to be transferred.

- Application of novel non-evidence based laboratory methods by considering all safety and quality standards and by using Euro DTP II, practical tools for assessment and verification of the quality, safety and efficacy of novel therapies with human tissues and cells.

ESHRE guideline on performance indicators at the ART clinic (2021):
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Performance-indicators-for-the-ART-Clinic

ESHRE Good Practice Recommendation in Donation (2022):
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Information-provision-in-donation

ESHRE guidelines on Time Lapse Technology (2020):
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/TLT

ESHRE guidelines on chromosomal mosaicism in PGT (2022):
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Chromosomal-Mosaicism-in-PGT

ART Lab Performance Indicators
The Vienna Consensus: Report of an Expert Meeting on the Development of ART Laboratory Performance Indicators

8 Andrology

Aims

The Fellow should demonstrate detailed knowledge and be able to discuss:

- The cycle of spermatogenesis, including endocrinological control mechanisms, its abnormalities, and the effects of drugs.
- The physiology and pathophysiology of sexual function; disorders of sperm deposition including ejaculation disorders.
- The results of sperm and seminal fluid examination.
- Causes of azoospermia, aspermia, oligozoospermia, asthenozoospermia and teratozoospermia.

Objectives

The Fellow should be able:

- To take an appropriate history and examine the man, if appropriate.
- To perform classification of andrological disorders: pretesticular, testicular, and post testicular origin and arrange/perform appropriate investigations.
- To select appropriate methods of male investigation and treatment.
- To perform appropriate sperm retrieval techniques where indicated.
- To perform diagnostic testing and counselling of genetic disorders related to male infertility.

9 Reproductive Surgery

Aims

The Fellow should understand and be able to discuss:

- Mullerian duct anomalies and developmental disorders.
- Endometriosis and adenomyosis.
- Appropriate selection of surgery and explanation of potential complications and long-term outcomes.
- Pelvic inflammatory disease and acquired disorders.
- Fertility sparing surgery.
- Ovarian tissue transplantation.

Objectives

The Fellow should be capable of independent practice with audited outcomes and validation of training requirements.

The Fellow should be able to do:

- Diagnostic hysteroscopy.
- Operative hysteroscopy.
- Diagnostic laparoscopy.
- Operative laparoscopy.
- Surgical treatment of benign ovarian and tubal disease, myoma, endometrial pathology and uterine abnormalities and tubal ligation.
- Surgical management of miscarriage.
- Surgical management of ectopic pregnancy.
- Management of imperforate hymen and vaginal septa.

The logbook should contain every operative intervention, countersigned, and dated by the Tutor to validate the Fellow's experience.

ESHRE Guidelines Endometriosis:
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Endometriosis-guideline

10 Early Pregnancy and Implantation

Aim

The Fellow should be able to know process of embryo implantation and diagnosis of pregnancy and adequate treatment for first trimester.

Objectives

The Fellow should understand and be able to discuss:

- Endocrinology of pregnancy especially Human Chorionic Gonadotrophin (HCG) levels and fluctuations in relation to the spectrum of early pregnancy outcomes.
- The feto-placental unit as relates to the physiology and pathophysiology of steroid hormones (e.g., oestrogen, progestogen, corticosteroids).
- The physiology of decidua-chorionic-placental peptide hormones (e.g. gonadotrophins, thyrotrophin, ACTH/opioid peptides and prolactin).
- The physiology and pathophysiology of fetal hypothalamic-pituitary-gonadal function.
- The pathophysiology of altered maternal thyroid, adrenal and pancreatic status during early pregnancy.
- Endocrine and cell signalling mechanisms contributing to implantation.
- Immunological adaptation to implantation (immunotolerance) and early pregnancy.
- Repeated implantation failure (RIF) and recurrent pregnancy loss (RPL).

The Fellow should:

- Be competent at early pregnancy ultrasound evaluation including those with maternal uterine anomalies.
- Manage and evaluate pregnancy of unknown location (PUL).
- Be confident in medical, surgical and conservative management of miscarriage.
- Be able to diagnose and manage all types of ectopic pregnancy.
- Be able to manage recurrent pregnancy loss.
- Be able to manage repeated implantation failure.

ESHRE Guidelines on
RIF: https://www.eshre.eu/Guidelines-and-Legal/Guidelines/RIF
Recurrent pregnancy loss: https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Recurrent-pregnancy-loss
Early Pregnancy: NICE reference provided below
National Institute for Health and Care Excellence (NICE), 2019. Ectopic pregnancy and miscarriage: diagnosis and initial management NICE guideline (Last updated: 23 August 2023) www.nice.org.uk/guidance/ng126 (accessed September 01, 2023).

11 Fertility Preservation

Aim

The Fellow should be able to discuss:

- Fundamentals of fertility preservation.
- Frequent indications for fertility preservation including benign conditions.
- Impact of cancer treatment on male fertility.
- Impact of cancer treatment on female fertility.
- Gonadotoxicity related to any treatment (targeted therapy, chemotherapy).
- Downstream use of cryopreserved reproductive material.

Objectives

The Fellow should have exposure and understanding of:

11.1 Male fertility

Cancer treatment:

- The effects of cancer treatment on spermatogenesis.
- Correct assessment of male fertility (semen analysis and endocrine profile).
- Sperm banking.
- Relevant local consent procedures pertaining to sperm storage and usage.
- Long term (late effects) of cancer treatment on male gonadal function.
- The later use of cryopreserved sperm.

Benign conditions:

- Genetic conditions: Klinefelter syndrome.
- Chronic inflammatory diseases, hematological, neurological diseases requiring treatments that may affect fertility.
- Gender diverse patients.

11.2 Female fertility

Cancer treatment:

- The effect of cancer treatment on the ovarian reserve.
- Assessment of ovarian reserve.
- Oocyte vs. embryo cryopreservation.
- Ovarian tissue banking.
- Current place of uterine transplantation.
- Methods to protect the ovary from the effects of chemo and radiotherapy.
- Relevant local consent procedures pertaining to oocyte and embryo cryopreservation and usage.
- Discuss the later use of cryopreserved oocytes, tissues and embryos and the long term (late effects) of cancer treatment on female gonadal function.

Benign conditions (including but not limited to):

- Turner syndrome.
- Endometriosis.
- Chronic inflammatory diseases, hematological, neurological diseases requiring treatments that may affect fertility.
- Cancer risk reduction surgery for BRCA mutation carriers.
- Transgender and gender diverse patients.

Assisted Reproductive Techniques for Fertility Preservation:

- Discuss controlled ovarian stimulation regimens for fertility preservation.
- Counsel patients regarding the process of controlled ovarian stimulation.
- Organise in a timely manner a cycle of controlled ovarian stimulation including the use of random cycle start.
- Discuss the use of adjuvant drugs during the stimulation cycle (e.g. Letrozole, GnRH analogues and Tamoxifen.
- Psychological Aspects of Fertility Preservation treatment.

The fellow in general must be able to counsel:

- The psychological effects of any reproductive treatment (such as cancer treatment).
- Physical and psychosocial recovery after cancer treatments.
- Factors influencing the decision-making process for women and men contemplating fertility preservation.
- Local facilities for counselling.

Impact of future pregnancy and health:

- Impact of chemotherapy and radiotherapy on future pregnancy.
- Multidisciplinary pre-conception assessment prior to use of cryopreserved material.
- Timing of pregnancy after cancer treatment.
- Effect of pregnancy on underlying condition.

Ethical and Legal Aspects:

- Relevant local Legislation.
- Consent issues regarding the posthumous use of gametes or embryos

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ESHRE Guideline on Fertility Preservation:
https://www.eshre.eu/Guidelines-and-Legal/Guidelines/Female-fertility-preservation

Summary article in Human Reproduction Open:
https://academic.oup.com/hropen/article/2020/4/hoaa052/5981739

Supplement on Reproductive Health, Published Paediatric Blood and Cancer, Sept 2023:
https://onlinelibrary.wiley.com/toc/15455017/2023/70/S5

11.3 Reproductive healthcare for transgender and gender diverse individuals

Fertility preservation and other aspects of reproductive health including contraception in transgender and gender diverse individuals.

Fellows should have knowledge of dealing with transgender and gender diverse people.

They should:

- Be aware of sensitivities associated in caring for this group.
- Be able to explain fertility preservation process.
- Modify process depending on specific needs e.g transabdominal scan for monitoring instead of transvaginal.
- Be aware of appropriate timing in relation to start of hormones.
- Know and discuss the Impact of hormones on FP process.
- Discuss future use of gametes and possible scenarios.

References:

Reproductive health in transgender and gender diverse individuals:
https://www.tandfonline.com/doi/full/10.1080/26895269.2022.2035883

Administration

The Fellow should be given some administrative experience and responsibility, which will allow him/her to acquire skills relevant to the future provision and organisation of clinical services in this area including follow up of patients who have had fertility preservation.

12 Basic principles of research

Objective

The research component of the subspecialty training aims to verify that Fellows are able to conduct a research study, in the field of Reproductive Medicine, that will be scientifically of good quality and according to the internationally recognised standards (i.e. standards published in the Medical Research Council's Good research practice: principles and guidelines http://www.mrc.ac.uk/research/research-policy-ethics/good-research-practice/).

12.1 Topics for research

- Reproductive Endocrinology.
- MAR.
- Reproductive Surgery.
- Laboratory (Embryology & Genetics).
- Andrology.
- Fertility preservation.
- Early Pregnancy and Implantation.
- All related to Reproductive Medicine subjects are accepted.

12.2 Key skills

Research skills involve the search for information that can be used effectively in order to investigate and discover new insights in the mechanisms of pathological conditions and possible markers for diagnosis or drugs to be used in therapies. The process is summarised in figure 1.

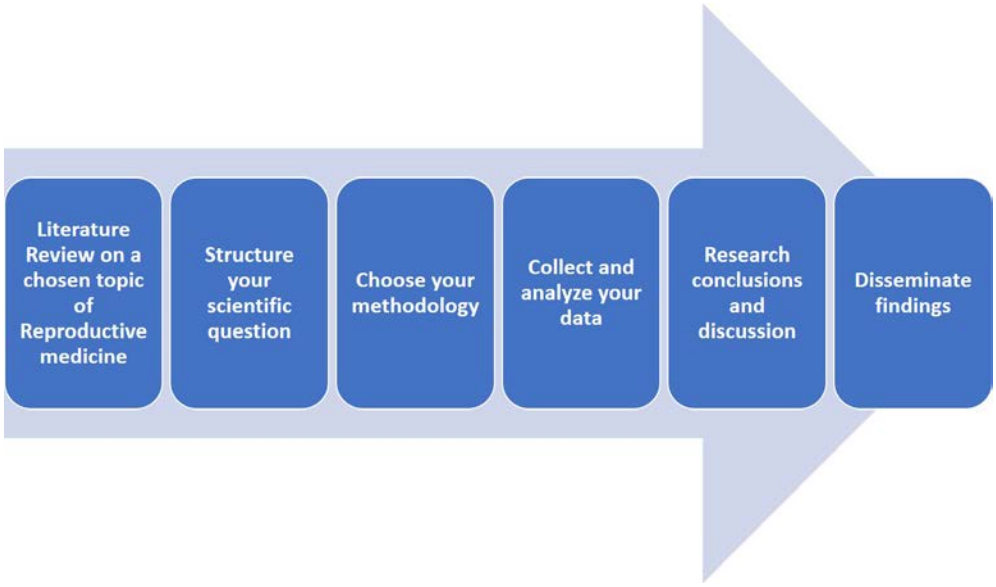

Figure 1: Research skills programme steps for Fellows.

A Fellow will need to demonstrate expertise in clinical and/or laboratory research methodology including the ability to:

- Find bibliography and research papers (references) of a reproductive biology topic.
- Critically read and learn information about the background knowledge of the chosen topic.
- Suggest and describe a new research hypothesis.
- Design the methodology (theoretical or experimental) of the new research project.
- Run and manage the research project or a part of it, showing good collaboration skills with a research team.
- Be aware of the ethical issues involved when the research involves animals or humans and know how to seek ethics and governance approvals as locally required.
- Understand statistical methods involved in research.
- Be able to analyse and interpret research/clinical data.
- Prepare a good quality scientific presentation or poster that will be presented in Reproductive Medicine meetings/conferences.
- Write a good quality scientific paper that will be published in peer-reviewed scientific journals.

It is compulsory that Fellows either:

a. Complete or participate in a research project relevant to the subspecialty training program or any other research programme that is related to Reproductive Medicine.
b. Be exempted due to previous proven research experience:
    - Have obtained an MD (Res) or PhD thesis in relative subjects.

    or

    - Have published papers in peer-review journals in relative subjects (MEDLINE journals; paper including original data).

12.3 Completion requirements for Fellows

To complete or participate in a research programme that leads to one publication in Pub Med Index Journal or two oral or poster presentation at international conferences/meetings related to Reproductive Medicine.

13 Non-technical skills

13.1 Epidemiology, Data collection and Audit

Objectives

The Fellow should be able to:

- Understand epidemiological techniques and inferential statistics.
- Understand population parameters and sampling techniques.
- Validate the data and evaluate the quality control.
- Understand disease surveillance systems and disease registries.
- Design, scoping, construction, and implementation of clinical guidelines.
- Use of robust evidence assessment such as GRADE analysis.

The Fellow should be familiar with:

- Data acquisition, storage, interpretation, and statistical analysis.
- Conducting clinical audit and feedback and be able to utilise data collection systems.

The Fellows should have the opportunity to attend appropriate national and where possible international meetings relevant to their subspecialty annually.

13.2 Teaching

Objective

The Fellow should gain experience in teaching which will include:

- Some responsibility for teaching junior staff in their subspecialty area.
- Full participation in the unit's postgraduate programme with some administrative responsibility for the organisation of teaching in the subspecialty.
- Participation in the undergraduate teaching programme (where possible).

13.3 Ethical and Legal Aspects

Objective

The Fellow should be able to discuss the ethical and legal aspects of the clinical practice of the subspecialty and should have knowledge of the relevant areas listed below:

- Legislation, particularly recent, relevant to the subspecialty practice.

- Ethics of health care provision and resource allocation.
- Medical confidentiality.
- Informed consent.
- Medical negligence.
- Handling of complaints and relevant procedures.
- Role and relevance of ethics committees.

Ethical and Legal Aspects

- Relevant local Legislation.
- Consent issues regarding the posthumous use of gametes or embryos.

13.4 Administration

Objective

The Fellow should be given some administrative experience and responsibility for skills relevant to the future provision and organisation of clinical services.
Types of relevant knowledge and experience are listed below:

- Attendance at a management/leadership course.
- An understanding of health service organisation and administrative and advisory structures.
- An understanding of the mechanisms of health care purchasing, provision of care, resource allocation and contractual issues relevant to the clinical service.
- Be cognisant of the need for regional referral systems and role of tertiary service in health care provision.
- Know how to review a service and formulate a business plan.
