The Hong Kong College of Obstetricians and Gynaecologists

Maternal and Fetal Medicine Subspecialty Subspecialty Training Logbook

Name of Trainee: _____

Hospital: _____

Training Period: Year 1 _____

Year 2 _____

Year 3 _____

Maternal and Fetal Medicine Subspecialty ***Page***

Curriculum and Logbook

Modules:

1. **Medical Complications of Pregnancy**
2. **Genetics**
3. **Structural Fetal Abnormalities**
4. **Antenatal Complications**
5. **Intrapartum Complications**
6. **Infectious Diseases**
7. **Clinical & Administrative Skills**

[Sections I to VI – to be signed by trainer every 6 months
Section VII – to be signed by trainer every year]

The trainee has to keep a logbook as required by the Board. The trainee is required to log his or her clinical activities, teaching experience, quality assurance activities, research activities and attendance at conferences, workshops, symposia and lectures and items as stipulated in details in the logbook. The logbook would be checked on the fulfillment of training requirements. (Section D-5.1)

The logbook should be reviewed and signed by trainer(s) every 6 months and submitted to the Subspecialty Board for review annually. There would be feedback from the Board to the trainee annually regarding the adequacy of training as reflected in the logbook. (Section D-8.1)

Maternal and Fetal Medicine Subspecialty Training document HKCOG 2014
http://hkcog.obg.cuhk.edu.hk/public/docs/training/subspecilaty/MFM_Training_2014.pdf

Module 1. Medical complications of pregnancy

1.1 Hypertension

Objectives

1. To be able to carry out appropriate assessment and management of women with chronic hypertension.
2. To be able to carry out appropriate assessment and management of women with pregnancy-induced hypertension, pre-eclampsia and associated complications.

Chronic hypertension

Knowledge criteria

Definition and diagnosis:
- Measurement of blood pressure in pregnancy, including validated devices.
- Impact of pregnancy on blood pressure.
- Superimposed pre-eclampsia.
- Prevalence (primary and secondary causes).

Pathophysiology:
- Acute hypertension.
- Chronic hypertension (including end-organ damage).

Management:
- Screening for common causes of secondary hypertension.
- Pregnancy management, including fetal monitoring.
- Maternal and fetal risks.
- Contraception.

Pharmacology, including adverse effects:
- Anti-adrenergics (e.g. propranolol, labetalol, oxprenolol).
- Calcium channel blockers (e.g. nifedipine).
- Vasodilators (e.g. hydralazine).
- ACE inhibitors (e.g. lisinopril).

Outcome: long-term and cardiovascular risks.

Clinical competency

Take an appropriate medical history from a woman with pre-existing hypertension:
- family history
- secondary causes of chronic hypertension
- complications of chronic hypertension
- outcomes of previous pregnancies
- drug therapy.

Perform an examination to screen for:
- secondary causes of hypertension
- complications of hypertension.

Manage a case of chronic hypertension, including:
- Counsel regarding fetal and maternal risks (including long-term health implications.
- Arrange appropriate investigations.
- institute and modify drug therapy.
- Plan delivery and postnatal care.
- Refer, where appropriate, for further assessment and treatment.

Professional skills and attitudes

Ability to take an appropriate history and conduct an examination to screen for secondary causes and complications of chronic hypertension.

Ability to perform and interpret appropriate investigations.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to manage antihypertensive drug therapy in antenatal and postnatal periods.

Ability to liaise with primary care and physicians in management of hypertension.

Ability to counsel women about:
- maternal and fetal risks
- safety of antihypertensive therapy
- contraception

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses
- (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at maternal medicine and hypertension clinics.
- Attachments in:
    - obstetric anaesthesia
    - intensive care unit/high-dependency unit
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

Pre-eclampsia

Knowledge criteria

Definition and diagnosis:
- pregnancy-induced hypertension (PIH)
- proteinuria
- prevalence.

Pathophysiology:
- placental pathology
- endothelial dysfunction and systemic manifestations
- oxidative stress.

Prediction (see 4.2).

Management of severe pre-eclampsia:
- maternal and fetal risks
- maternal monitoring, including indications for invasive monitoring)
- fetal monitoring
- management of complications
- HELLP syndrome
- Eclampsia, including differential diagnosis convulsions, altered consciousness (see 1.18)
- cerebrovascular accident (see 1.9)
- pulmonary oedema, acute respiratory distress syndrome (see 1.5)
- contraception.

Pharmacology, including adverse effects:
- magnesium sulphate
- frusemide.

Outcome, including long-term cardiovascular risks.

Clinical competency

Take an appropriate medical history from a woman with pre-eclampsia:
- family history
- symptoms of severe disease.

Perform an examination to screen for complications in a woman with pre-eclampsia.

Manage a case of complex pre-eclampsia (or PIH) with: (a) HELLP, (b) severe hypertension, (c) eclampsia and (d) pulmonary oedema:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations
- institute and modify drug therapy
- plan delivery and postnatal care
- refer, where appropriate, for further assessment and treatment.

Manage a case of pre-eclampsia with acute renal failure:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations
- refer to for further assessment and treatment.

Professional skills and attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with pre-eclampsia.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to manage antihypertensive drug therapy in antenatal and postnatal periods.

Ability to liaise with primary care and physicians in management of hypertension.

Ability to counsel women about:
- maternal and fetal risks
- safety of anti-hypertensive therapy
- recurrence risks and future management (see 4.2)
- contraception.

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attachments in:
    - obstetric anaesthesia
    - intensive care unit/high-dependency unit.
- Personal study.
- RCOG Green-top Guideline *Management of Severe Pre-eclampsia/Eclampsia* (No. 10A).

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.2 Renal disease

Objectives

1. To be able to carry out, under supervision, appropriate assessment and management of women with pre-existing renal disease and renal transplants.
2. To be able to carry out appropriate assessment and management of women with pregnancy-induced renal disease.

Knowledge criteria

The kidney in normal pregnancy:
- anatomical changes, including hydronephrosis)
- functional changes
- interpretation renal function tests
- fluid and electrolyte balance.

Pre-existing renal disease (CRD): reflux nephropathy, glomerulonephritis, polycystic kidney disease (PKD):
- pathology
- prevalence
- prepregnancy assessment
- pregnancy management
- outcome (including genetic implications).

Renal transplant recipients:
- prepregnancy assessment
- diagnosis rejection
- pregnancy management
- long term considerations
- pharmacology (including adverse effects)
- cyclosporine, tacrolimus
- azathioprine (see 1.10)
- corticosteroids (see 1.5, 1.6, 1.10).

Acute renal failure (ARF) in pregnancy and the puerperium:
- aetiology and diagnosis, including differential diagnosis of abnormal renal function (see 1.18)
- management and outcome
- indications for and principles of renal support.

Urinary tract infection (see 6.15): differential diagnosis proteinuria (see 1.18).

Clinical competency

Take an appropriate history from a woman with CRD:
- family history
- complications
- outcome of previous pregnancies
- drug therapy.

Perform an examination to screen for complications of CRD.

Manage a case of CRD:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations
- institute and modify drug treatment
- plan delivery and postnatal care
- refer where appropriate, for further assessment and treatment.

Manage a case of renal transplant or ARF:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations
- refer for further assessment and treatment.

Professional skills and attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with CRD.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to manage antihypertensive drug therapy in antenatal and postnatal periods.

Ability to liaise with nephrologists and intensivists in the management of acute and CRD.

Ability to counsel women about maternal and fetal risks, inheritance, recurrence risks, contraception.

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at renal medicine clinic.
- Attachment in intensive care unit/high-dependency unit.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.3 Cardiac disease

Objectives

1. To be able to carry out, under supervision, appropriate assessment and management of women with pre-existing cardiac disease.
2. To be able to carry out, under supervision, appropriate assessment and management of women with pregnancy-induced cardiac disease.

Knowledge criteria

The heart in normal pregnancy:
- anatomical and functional changes, including differential diagnosis heart murmur (see 1.18)
- ECG, echocardiography and assessment of cardiac function.

Congenital heart disease:
- classification (cyanotic and acyanotic) and risks
- prevalence
- functional impact of pregnancy prepregnancy assessment, indications for termination of pregnancy
- pregnancy management including prevention and management of endocarditis, thromboembolism, arrhythmias, cardiac failure
- maternal and fetal outcome, including genetic implications)
- contraception.

Acquired heart disease (rheumatic, ischaemic, valve replacement, Marfan syndrome, arrythmias):
- functional impact of pregnancy
- prepregnancy assessment
- diagnosis, including differential diagnosis chest pain, palpitations (see 1.18)
- pregnancy management, including management of cardiac failure.

Pharmacology, including adverse effects:
- diuretics and antihypertensives (see 1.2, 1.3)
- inotropes (e.g. digoxin, ACE inhibitor)
- anti-arrhythmics (e.g. adenosine, mexiletine, lidocaine, procainamide)
- anticoagulants (low-molecular-weight heparin, warfarin; see 1.12, 4.2).

Peripartum cardiomyopathy:
- diagnosis, including differential diagnosis breathlessness (see 1,18)
- management and outcome
- recurrence risks.

Clinical competency

Take an appropriate history from a woman with cardiac disease:
- family history
- previous operations/procedures
- complications of cardiac disease
- drug therapy.

Perform an examination to assess cardiac disease.

Manage a case of congenital and acquired heart disease in pregnancy:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations refer to cardiologists, haematologists, anaesthetists for further assessment and treatment
- plan delivery and postnatal care in liaison with cardiologists, intensivists and anaesthetists
- counsel regarding contraception.

Professional skills and attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with heart disease.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan in liaison with cardiologists, haematologists, intensivists and anaesthetists.

Ability to counsel women about:
- maternal and fetal risks
- recurrence risks
- contraception.

Training support

Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.4 Liver disease

Objectives

1. To be able to carry out, under supervision, appropriate assessment and management of women with pre-existing liver disease.
2. To be able to carry out appropriate assessment and management of women with pregnancy-induced liver disease.

Knowledge criteria

Liver in normal pregnancy:
- anatomical and functional changes
- interpretation of liver function tests in pregnancy.

Pre-existing liver disease (primary biliary cirrhosis, chronic active hepatitis, liver transplant recipient (see also 1.2):
- pathology
- functional impact of pregnancy
- pregnancy management
- maternal and fetal outcome
- contraception.

Obstetric cholestasis:
- pathogenesis
- prevalence
- diagnosis, including differential diagnosis of itching and altered liver function (see 1.18)
- pregnancy management, including fetal monitoring
- pharmacology, including adverse effects:
    - ursodeoxycholic acid
    - corticosteroids (see 1.2, 1.5, 1.6,1.9).

Acute fatty liver of pregnancy (AFLP):
- diagnosis, including differential diagnosis of overlap syndromes (e.g. pulmonary embolism)
- management and outcome, including management of liver failure
- recurrence risks.

Viral hepatitis (see 6.2).

Clinical competency

Take an appropriate history from a woman with liver disease:
- complications of liver disease
- drug therapy.

Perform an examination to assess liver disease.

Manage a case of chronic liver disease in pregnancy:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations
- refer to hepatologists for further assessment and treatment
- plan delivery and postnatal care in liaison with hepatologists
- counsel regarding contraception.

Manage a case of obstetric cholestasis and AFLP:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations and fetal monitoring
- institute and modify drug treatment
- refer, where appropriate, for further assessment and treatment
- plan delivery and postnatal care
- counsel regarding contraception.

Professional skills and attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with liver disease.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan liaise with hepatologists where appropriate (e.g. chronic liver disease, AFLP).

Ability to counsel women about:

- maternal and fetal risks
- inheritance
- recurrence risks
- contraception.

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at hepatology clinic.
- RCOG Green-top Guideline *Obstetric Cholestasis* (No. 43)
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.5 Respiratory disease

Objectives

1. To be able to carry out, under supervision, appropriate assessment and management of women with pre-existing lung disease.
2. To be able to carry out, under supervision, appropriate assessment and management of women with acute lung disease.

Knowledge criteria

The lungs in normal pregnancy:
- anatomical and functional changes
- interpretation of chest X-ray and pulmonary function tests, including blood gases in pregnancy.

Pre-existing lung disease (asthma, sarcoidosis, cystic fibrosis, restrictive lung disease):
- pathogenesis
- prevalence
- functional impact of pregnancy
- pregnancy management
- maternal and fetal outcome
- pharmacology, including adverse effects:
    - betasympathomimetics (e.g. salbutamol, terbutaline)
    - theophyllines
    - sodium cromoglicate
    - corticosteroids (see 1,2, 1.6, 1.9)
- tuberculosis (see 6.10).

Acute lung disease in pregnancy: acute respiratory distress syndrome (ARDS), pneumothorax, pneumonia:
- pathogenesis
- diagnosis, including differential diagnosis of chest pain, breathlessness (see 1.18), tachypnoea, acute hypoxaemia)
- oxygen therapy
- management of respiratory failure, including indications for and principles of ventilatory support
- pharmacology, including adverse effects
    - amoxicillin and other antibiotics (see 6).

Clinical competency

Take an appropriate history from a woman with lung disease:
- lung function results
- drug therapy.

Perform an examination to assess lung disease.

Manage a case of chronic lung disease in pregnancy:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations
- institute and modify drug therapy
- plan delivery and postnatal care
- refer, where appropriate, for further assessment, treatment.

Manage a case of acute lung disease in pregnancy:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations and fetal monitoring
- refer to respiratory physicians and intensivists for further assessment and treatment
- plan delivery and postnatal care in liaison with respiratory physicians.

Professional skills and attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with respiratory disease.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to liaise with respiratory physicians and intensivists where appropriate (e.g. cystic fibrosis, ARDS).

Ability to counsel women about maternal and fetal risks, safety of asthma therapy in pregnancy, contraception.

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at chest and pulmonary function laboratory.
- Attachment in intensive care unit/high-dependency unit.
- Personal study.
- British Thoracic Society/Scottish Intercollegiate Guidelines Network. *British Guideline on the Management of Asthma* (SIGN Guideline No. 63) (www.sign.ac.uk/guidelines).
- British Thoracic Society guideline: *Guidelines for the Management of Community Acquired Pneumonia in Adults* (www.brit-thoracic.org.uk).

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.6 Gastrointestinal disease

Objectives

1. To be able to carry out, under supervision, appropriate assessment and management of women with pre-existing gastrointestinal (GI) disease.
2. To be able to carry out appropriate assessment and management of women with pregnancy induced GI disease.

Knowledge criteria

The GI tract in normal pregnancy:
- anatomical and functional changes.

Pre-existing GI disease (ulcerative colitis, Crohn's disease, coeliac disease irritable bowel syndrome):
- pathogenesis.
- functional impact of pregnancy
- pregnancy management
- maternal and fetal outcome
- pharmacology, including adverse effects):
    - sulfasalazine, 5-ASA
    - corticosteroids (see 1.2,1.5, 1.9)
    - bulking agents, lactulose
    - antispasmodics.

Pregnancy-related GI disease (hyperemesis gravidarum, reflux oesophagitis, constipation):
- pathogenesis
- prevalence
- diagnosis, including differential diagnosis of vomiting (see 1.18) and role of endoscopy
- pregnancy management, including parenteral nutrition and steroids
- pharmacology, including adverse effects
- anti-emetics (e.g. cyclizine, metoclopramide)
- antacids (e.g. magnesium trisilicate)
- H2-receptor antagonists (e.g. ranitidine).

Appendicitis:
- diagnosis, including differential diagnosis abdominal pain (see 1.18, 6.15, 6.16) and role of ultrasound
- Management, including antibiotics)
- maternal and fetal outcome.

Clinical competency

Take an appropriate history from a woman with GI disease:
- previous surgery/procedure
- drug therapy.

Perform an examination to assess lung disease.

Manage a case of chronic GI disease in pregnancy and pregnancy-induced GI disease:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations
- institute and modify drug therapy
- plan delivery and postnatal care
- refer, where appropriate, for further assessment and treatment.

Manage a case of appendicitis in pregnancy:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations refer for further assessment and surgery.

Professional skills and attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with GI disease.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to liaise with gastroenterologists or surgeons, where appropriate.

Ability to counsel women about:
- maternal and fetal risks
- safety of anti-emetic, anti-inflammatory therapy in pregnancy

contraception.

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at GI clinic.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.7 Diabetes

Objectives

1. To be able to carry out appropriate assessment and management of women with pregestational diabetes.
2. To be able to carry out appropriate assessment and management of women with gestational diabetes.

Knowledge criteria

Glucose homeostasis in pregnancy.

Pre-existing diabetes:
- pathogenesis and classification
- prevalence
- complications (metabolic, retinopathy, nephropathy, neuropathy, vascular disease)
- prepregnancy assessment
- functional impact of pregnancy in uncomplicated and complicated diabetes
- pregnancy management
    - prepregnancy care
    - maternal monitoring (glycaemic control)
    - fetal monitoring
    - intrapartum care
- maternal and fetal outcome, including fetal abnormality, macrosomia, fetal growth restriction
- pharmacology, including adverse effects
- insulin
- oral hypoglycaemics (e.g. metformin)
- contraception.

Gestational diabetes:
- pathophysiology and diagnosis
- prevalence
- pregnancy management, including diet, insulin and oral hypoglycaemic agents)
- maternal and fetal outcome
- long term risks and management
- contraception.

Outcome: neonatal complications, management.

Clinical competency

Take an appropriate history from a woman with pre-existing diabetes:
- diabetic control
- presence and severity of complications
- drug therapy.

Perform an examination to screen for diabetic complications.

Manage a case of pregestational diabetes:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations and monitoring
- institute and modify drug therapy, including management of hypoglycaemia
- plan delivery and postnatal care
- refer, where appropriate, for further assessment, treatment (e.g. in women with complications).

Manage a case of gestational diabetes:
- counsel regarding fetal and maternal risks
- arrange and interpret appropriate investigations and fetal monitoring
- refer to dietician for further assessment
- institute and modify drug therapy, where appropriate
- plan delivery and postnatal care.

Professional skills and attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with pre-existing diabetes.

Ability to perform and interpret appropriate investigations.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to liaise with diabetologists, diabetic nurse specialists, dieticians and other specialists where appropriate (e.g. complex diabetes).

Ability to counsel women about:
- maternal and fetal risks
- importance of good glycaemic control, including use of insulin in gestational diabetes)
- contraception
- long-term risks and management.

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at obstetric medicine and diabetes clinics.
- Attachments in neonatal unit and intensive care unit/high-dependency unit.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.8 Other Endocrine Disease

Objectives

To be able to carry out appropriate assessment and management of women with pre-existing thyroid disease.

To be able to carry out, under supervision, appropriate assessment and management of women with other endocrine diseases.

Knowledge Criteria

Endocrine function in pregnancy:
- Thyroid physiology in pregnancy
- Pituitary and adrenal physiology in pregnancy
- Fetal thyroid and adrenal function.

Thyroid disease (hyperthyroidism, hypothyroidism):
- Prevalence
- Pathogenesis (including Graves disease)
- Diagnosis
- Maternal and fetal outcome, including fetal hypo/hyperthyroidism, developmental delay
- Pregnancy management:
    - maternal monitoring (FT4, TSH, TSH-receptor immunoglobulins)
    - fetal monitoring (ultrasound, blood sampling)
- Pharmacology, including adverse effects:
    - thyroxine
    - thionamides (e.g. carbimazole, propylthiouracil)
- Management and outcome of neonatal hypo-and hyperthyroidism.

Pituitary and adrenal diseases:
- Pathophysiology (hyperprolactinaemia, Cushing syndrome, hypopituitarism, Addison's disease, diabetes insipidus)
- Maternal and fetal outcome
- Pregnancy management
- Pharmacology, including adverse effects:
- Bromocriptine
- Desmopressin acetate.

Pregnancy-induced endocrine disease:
- Pathophysiology (postpartum thyroiditis, lymphocytic hypophysitis, diabetes insipidus)
- Pregnancy and postnatal management.

Clinical Competency

Take an appropriate history from a woman with thyroid/pituitary/adrenal disease:
- Previous and current therapy.

Perform an examination to screen for endocrine dysfunction in pregnancy.

Manage a case of hyper-/hypothyroidism during and after pregnancy:
- Counsel regarding fetal and maternal risks
- Arrange and interpret appropriate investigations and monitoring
- Institute and modify drug therapy
- Plan delivery and postnatal care
- Refer, where appropriate, for further assessment and treatment.

Manage a case of pituitary/adrenal disease during and after pregnancy:
- Counsel regarding fetal and maternal risks
- Arrange and interpret appropriate investigations and fetal monitoring
- Institute and modify drug therapy, where appropriate
- Refer, where appropriate, to endocrinologist for further assessment and therapy
- Plan delivery and postnatal care.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with endocrine disease.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to liaise with endocrinologist, and other specialists, where appropriate.

Ability to counsel women about maternal and fetal risks, contraception, long-term risks and management.

Training support

- Observation and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at obstetric medicine and endocrine clinics.
- Attachment in neonatal unit and intensive care/high-dependency unit.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.9 Neurological Disease

Objectives

To be able to carry out, under supervision, appropriate assessment and management of women with pre-existing neurological disease.

To be able to carry out appropriate assessment and management of women with pregnancy-induced neurological disease.

Knowledge Criteria

Neurological function in pregnancy.

Pre-existing neurological disease (epilepsy, migraine, multiple sclerosis, myasthenia gravis, myotonic dystrophy, idiopathic intracranial hypertension, spina bifida):

- Pathogenesis
- Prevalence
- Functional impact of pregnancy
- Pregnancy management, including:
    - Prepregnancy care
    - Prenatal diagnosis (see 3.1)
    - Peripartum care
- Maternal and fetal outcome
- Pharmacology, including adverse effects:
    - phenytoin, valproic acid, carbamazepine, lamotrigine
    - propranolol, tricyclic antidepressants (see 1.13)
    - acetazolamide
    - pyridostigmine
- Contraception.

Acute and pregnancy-induced neurological disease (stroke, neuropathies – Bell's palsy, carpal tunnel syndrome, meralgia paresthetica):

- Pathogenesis, stroke (including cerebrovascular disease, cerebral venous thrombosis, subarachnoid haemorrhage), neuropathies
- Diagnosis, including differential diagnosis, headache, convulsions and altered consciousness (see 1.18) and cerebral imaging, electrophysiology
- Management, including corticosteroids (see modules 1.5, 1.6)
- Maternal and fetal outcome.

Clinical Competency

Take an appropriate history from a woman with neurological disease:
- Previous and current therapy
- Previous procedures and operations
- Drug therapy.

Perform an examination in a woman with neurological disease.

Manage a case of chronic neurological disease in pregnancy (including previous stroke):
- Counsel regarding fetal and maternal risks, including risks therapy
- Arrange and interpret appropriate investigations Institute and modify drug therapy
- Plan delivery and postnatal care
- Refer, where appropriate, for further assessment and treatment.

Manage a case of neuropathy in pregnancy:
- Counsel regarding maternal risks and prognosis
- Institute and modify therapy, including, where appropriate, drug therapy
- Refer, where appropriate, for further assessment and treatment.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with neurological disease.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to liaise with neurologists, physiotherapists and intensivists where appropriate (e.g. cystic fibrosis, acute respiratory distress syndrome).

Ability to counsel women about:
- Maternal and fetal risks
- Risks of anti-epileptic therapies
- Postnatal care
- Contraception
- Long-term outcome.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at obstetric medicine and neurology clinics.
- Attachment in intensive care unit/high-dependency unit.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.10 Connective Tissue Disease

Objective

To be able to carry out, under supervision, appropriate assessment and management of women with pre-existing connective tissue disease (CTD).

Knowledge Criteria

Systemic lupus erythematosus (SLE) and antiphospholipid syndrome (APS):

- Pathogenesis
- Prevalence
- Diagnosis, including classification criteria (Sapporo, American Rheumatoid Association), laboratory investigations)
- Functional impact of pregnancy
- Management, including:
    - Prepregnancy care
    - Maternal and fetal monitoring
- Maternal and fetal outcome
- Pharmacology, including adverse effects:
    - corticosteroids, azathioprine (see modules 1.2, 1.5, 1.6)
    - aspirin, low-molecular-weight heparin (see modules 1.12, 4.2)
- Contraception
- Outcome, including management of neonatal lupus.

Other CTD, including scleroderma, rheumatoid arthritis, mixed CTD:

- Pathogenesis
- Diagnosis
- Functional impact of pregnancy.

Management, including:

- Prepregnancy care
- Maternal and fetal monitoring
- Maternal and fetal outcome
- Pharmacology, including adverse effects:
    - aspirin (see module 4.2), nonsteroidal anti-inflammatory drugs,
    - corticosteroids (see modules 1.2, 1.5, 1.6)
    - chloroquine (see module 6.9)
    - sulfasalazine (see module 1.6)
    - azathioprine (see module 1.2)
    - penicillamine.
- Contraception.

Clinical Competency

Take an appropriate history from a woman with CTD:
- Previous obstetric history
- Drug therapy.

Manage a case of SLE and APS in pregnancy:
- Counsel regarding fetal and maternal risks, including risks of therapy
- Arrange and interpret appropriate investigations, including fetal monitoring
- Institute and modify drug therapy
- Plan delivery and postnatal care
- Refer, where appropriate, for further assessment and treatment,

Manage a case of other CTD in pregnancy:
- Counsel regarding fetal and maternal risks, including risks therapy
- Arrange and interpret appropriate investigations, including fetal monitoring
- Plan delivery and postnatal care
- Refer, where appropriate, for further assessment and treatment.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with neurological disease.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to liaise with immunologists, physicians, physiotherapists, where appropriate.

Ability to counsel women about:
- Maternal and fetal risks
- Contraception
- Long-term outcome.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at obstetric medicine and SLE/CTD clinics.
- Attachment in intensive care unit/high-dependency unit.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.11 Haematological Disease

Objectives

To be able to carry out, under supervision, appropriate assessment and management of women with pre-existing haematological disease.

To be able to carry out appropriate assessment and management of women with pregnancy-induced haematological disease.

Knowledge Criteria

Haematological function in pregnancy:
- Red cell and plasma volume changes during pregnancy
- Changes in coagulation system during pregnancy
- Interpretation of haematological and clotting tests.

Anaemia:
- Pathogenesis (iron, folate and vitamin B12 deficiency
- Prevalence
- Diagnosis
- Maternal and fetal outcome
- Pharmacology, including adverse effects:
    - iron (oral and parenteral)
    - folic acid
    - vitamin B12.

Haemoglobinopathies (sickle cell and thalassaemia syndromes):
- Genetic basis and pathogenesis
- Prevalence
- Prenatal diagnosis (see 2.1)
- Fetal monitoring
- Functional impact of pregnancy
- Maternal and fetal outcome
- Management, including vaso-occlusive crisis in sickle cell disease, haematinic and transfusion therapy.

Thrombocytopenia:
- Prevalence
- Diagnosis, including differential diagnosis
- Pathogenesis, including gestational thrombocytopenia, idiopathic thrombocytopenic purpura, haemolytic uraemic syndrome and thrombotic thrombocytopenic purpura)
- Maternal and fetal outcome
- Management, including role of splenectomy

- Pharmacology, including adverse effects:
    - corticosteroids, azathioprine (see 1.2, 1.10)
    - intravenous immunoglobulin G.

Congenital coagulation disorders:
- Genetic basis and pathogenesis, von Willebrand's disease, haemophilia
- Prevalence
- Prenatal diagnosis (see 2.1)
- Diagnosis and maternal monitoring (clotting factor levels/von Willebrand factor (vWf) antigen activity, vWf ristocetin cofactor activity (vWf:rco)
- Maternal and fetal outcome
- Management, including pre-pregnancy counselling and intrapartum care
- Pharmacology, including adverse effects:
    - desmopressin acetate
    - recombinant and plasma-derived factor concentrates.

Disseminated intravascular coagulation (DIC) (see modules 5.7,5.10):
- Aetiology and pathogenesis
- Diagnosis
- Management:
    - resuscitation (see module 5.10) with volume replacement
    - platelet, fresh frozen plasma replacement
    - recombinant factor VIIa (see module 5.7).

Clinical Competency

Take an appropriate history from a woman with haematological disease:
- Diagnosis
- Drug therapy.

Perform an examination to assess anaemia/thrombocytopenia.

Manage a case of anaemia during pregnancy:
- Counsel regarding fetal and maternal risks
- Arrange and interpret appropriate investigations
- Institute and modify drug therapy (including, where appropriate, parenteral iron, blood transfusion)
- Plan delivery and postnatal care
- Refer, where appropriate, for further assessment and treatment.

Manage a case with thalassaemic syndromes:
- Counsel regarding fetal and maternal risks and prenatal diagnosis
- Arrange and interpret appropriate investigations
- Institute and modify therapy (including blood transfusion)
- Plan delivery and postnatal care
- Refer, where appropriate, for further assessment and treatment.

Manage a case of immune thrombocytopenic purpura in pregnancy:
- Counsel regarding fetal and maternal risks
- Arrange and interpret appropriate investigations
- Institute and modify therapy
- Plan delivery and postnatal care
- Refer, where appropriate, for further assessment and treatment.

Manage a case of congenital coagulation disorder in pregnancy:
- Counsel regarding fetal and maternal risks and prenatal diagnosis
- Arrange and interpret appropriate investigations
- Institute and modify therapy
- Plan delivery and postnatal care
- Refer, where appropriate, for further assessment and treatment.

Manage a case of DIC in pregnancy:
- Identify and treat underlying cause
- Arrange and interpret appropriate investigations
- Institute and modify resuscitative and replacement therapy.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with haematological disease.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to liaise with haematologists and geneticists where appropriate.

Ability to counsel women about:
- Maternal and fetal risks
- Prenatal diagnosis (see 2.1)
- Contraception
- Long-term outcome.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy). Attendance at obstetric medicine and haematology clinics.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.12 Thromboembolic Disease

Objectives

To be able to carry out appropriate assessment and management of women at risk or with a history of thromboembolic disease.

To be able to carry out appropriate assessment and management of a woman with pregnancy-induced thromboembolic disease.

Knowledge Criteria

Venous thromboembolism (VTE) in pregnancy:

- Pathogenesis of deep-venous thrombosis (DVT), pulmonary embolism
- Prevalence
- Risk factors, including thrombophilias
- Diagnosis (clinical, D-dimer, ultrasound , Doppler, chest X-ray, ECG, blood gases, isotope scanning, spiral CT)
- Acute management
- Antithrombotic agents
- Laboratory monitoring
- Thrombolytic therapy and surgery
- Subsequent prophylaxis, including non-pharmacological methods
- Pharmacology, including adverse effects:
    - unfractionated heparin, low-molecularweight heparin
    - warfarin
    - streptokinase
- Outcome, including postphlebitic syndrome
- Contraception.

Thrombophilia/previous VTE:

- Genetic basis and pathogenesis of congenital and acquired thrombophilias (see 1.10)
- Diagnosis of thrombophilia (laboratory investigations and interpretation in pregnancy)
- Risk of VTE (based on thrombophilia, past history)
- Maternal and fetal risks (including fetal loss, pulmonary embolism, fetal growth restriction)
- Management, including;
    - non-pharmacological approaches
    - LMWH, aspirin
    - fetal monitoring
- Contraception.

Clinical Competency

Take an appropriate history from a woman with suspected VTE in pregnancy, including previous VTE and family history.
Perform an examination to assess suspected VTE in pregnancy.

Manage a case of VTE in pregnancy:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks
- Plan subsequent care, including delivery and postnatal care
- Refer, where appropriate, for further assessment and treatment.

Manage a case of thrombophilia and/or previous VTE in pregnancy:
- Arrange and interpret appropriate investigations Counsel regarding risks of VTE in pregnancy and the puerperium
- Institute and modify VTE prophylaxis, where appropriate
- Plan delivery and postnatal care
- Refer, where appropriate, for further assessment and treatment.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with suspected VTE in pregnancy.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to liaise with physicians, radiologists and haematologists, where appropriate.

Ability to counsel women about:
- Maternal and fetal risks
- Risks and benefits of prophylactic antithrombotic therapy during pregnancy, labour and the puerperium
- Long-term outcome
- Contraception.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at obstetric medicine and thrombophilia/haematology clinics.
- RCOG Green-top Guideline *Thromboembolic Disease in Pregnancy and the Puerperium* (No. 28).
- RCOG Green-top Guideline *Thromboprophylaxis during Pregnancy, Labour and after Vaginal Delivery* (No. 37).
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.13 Psychiatric Disease

Objectives

To be able to carry out, under supervision, appropriate assessment and management of women with pre-existing psychiatric disease.

To be able to carry out, under supervision, appropriate assessment and management of women with pregnancy-induced/related psychiatric disease.

Knowledge Criteria

Pre-existing psychiatric disease, including depression and bipolar disorders, anxiety disorders, schizophrenia:

- Prevalence
- Functional impact of pregnancy
- Pregnancy and postnatal management
- Role of specialist team, community liaison, mother and baby units
- Psychotherapy
- Pharmacological therapy and risks of withdrawal
- Mother and baby units
- Maternal and fetal risks
- Pharmacology, including adverse effect:
    - tricyclic, selective serotonin reuptake inhibitors
    - phenothiazines (e.g. trifluoperazine, chlorpromazine)
    - butyrophenones (e.g. haloperidol)
    - benzodiazepines
    - lithium, carbamazepine
- Neonatal management, including withdrawal and long-term risks
- Legal issues, including Mental Health Act and consent, child protection.

Pregnancy-induced and related psychiatric disease:
Risk factors

- Diagnosis, including differential diagnosis of postnatal depression
- Management
- Role of specialist team, community liaison, mother and baby units
- Support and psychotherapy
- Pharmacological therapy and electroconvulsive therapy
- Maternal and neonatal outcome, including recurrence risks.

Clinical Competency

Take an appropriate history from a woman with psychiatric illness:
- Previous history
- Drug history
- Risk factors.

Manage a case of chronic psychiatric disease in pregnancy:
- Refer to psychiatric services for further assessment and treatment
- Counsel regarding maternal, fetal and neonatal risks
- Institute and modify drug therapy, where appropriate
- Plan pregnancy, delivery and postnatal care.

Manage a case of postnatal depression/puerperal psychosis:
- Identify high-risk women and refer to psychiatric services for further assessment and treatment
- Institute and modify therapy where appropriate
- Counsel regarding maternal and neonatal risks, long-term outcome, including risk of recurrence.

Professional Skills and Attitudes

Ability to take an appropriate history to assess a woman with psychiatric disease.

Ability to formulate, implement and where appropriate modify a multidisciplinary management plan.

Ability to formulate list of differential diagnoses.

Ability to liaise with psychiatrists and community psychiatric nurses.

Ability to counsel women about:

Maternal risks
- Risks and benefits of therapy
- Long-term outcome and risk of recurrence
- Breastfeeding
- Contraception.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at obstetric psychiatry and psychiatry clinics.
- Attachment in perinatal psychiatry.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.14 Substance Abuse

Objectives

To be able to carry out appropriate assessment and management of women with previous or current history of alcohol abuse.

To be able to carry out appropriate assessment and management of a woman with previous or current history of substance abuse or dependency.

Knowledge Criteria

Maternal and fetal effects, including maternal psychosocial effects:
- Alcohol, including acute intoxication
- Cannabis
- Opiates
- Cocaine and crack
- Benzodiazepines
- Amphetamines, ketamine
- Lysergic acid diethylamide (LSD), phencyclidine (angel dust)
- Toluene (glue sniffing)
- Smoking.

Management:
- Screening methods and diagnosis
- Structure and organisation of antenatal care
- Organisation of drug and alcohol dependency services and links with psychiatric and social services
- Prenatal diagnosis and fetal monitoring
- Overdose
- Detoxification
- Maintenance therapy
- Analgesia in labour
- Smoking cessation strategies (and their effectiveness).

Pharmacology, including adverse effects:
- Methadone
- Benzodiazepines (see 1.13)
- Nicotine replacement.

Outcome:
- Neonatal management and outcome, including management of withdrawal
- Legal issues (child protection).

Clinical competency

Take an appropriate history from a woman with alcohol or substance abuse or dependence:
- Social problems and support
- Previous detoxification, methadone maintenance
- Complications.

Perform an examination to assess suspected alcohol or substance abuse.

Manage a case of alcohol abuse in pregnancy:
- Arrange and interpret appropriate maternal and fetal investigations
- Liaise with primary care, social services, alcohol dependency team and refer, where appropriate, for further assessment and treatment
- Counsel regarding maternal, fetal and neonatal risks
- Institute and modify supportive and drug therapy
- Plan pregnancy, delivery and postnatal care.

Manage a case of substance abuse in pregnancy: Arrange and interpret appropriate maternal and fetal investigations
- Liaise with primary care, social services, alcohol dependency team and refer, where appropriate, for further assessment and treatment
- Counsel regarding maternal, fetal and neonatal risks
- Institute and modify supportive and drug therapy
- Plan pregnancy, delivery and postnatal care.

Professional skills and attitudes

Ability to take an appropriate history and perform an examination to assess a woman with alcohol or substance abuse or dependency.

Ability to provide sympathetic support (suppressing any display of personal judgement).

Ability to formulate, implement and where appropriate modify a multidisciplinary management plan.

Ability to liaise with drug dependency team, psychiatrists, social services, pharmacists and neonatologists.

Ability to counsel women about:

- Drinking and drug cessation
- Maternal, fetal and neonatal risks
- Long-term health implications
- Breastfeeding
- Contraception.

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at drug and alcohol abuse and psychiatry clinics.
- Personal study.
- RCOG Green-top Guideline *Alcohol Consumption in Pregnancy* (No. 9)

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.15 Skin Disease

Objectives

To be able to carry out, under supervision, appropriate assessment and management of women with pre-existing skin disease.

To be able to carry out appropriate assessment and management of women with pregnancy-induced skin disease.

Knowledge Criteria

Physiological changes of pregnancy:
- Skin
- Nails and hair.

Pre-existing skin disease (eczema, psoriasis, acne):
- Pathogenesis
- Prevalence
- Functional impact of pregnancy
- Pregnancy and postnatal management Pharmacology, including adverse effects:
    - emollients
    - topical corticosteroids
    - topical benzoyl peroxide.

Pregnancy-induced skin disease (pemphigoid gestationis, polymorphic eruption of pregnancy, prurigo of pregnancy, pruritic folliculitis of pregnancy):
- Pathogenesis
- Prevalence
- Diagnosis, including skin histological and immunofluorescent findings
- Maternal and fetal outcome
- Management, including plasmapheresis, immunosuppressants
- Pharmacology, including adverse effects:
    - topical and systemic corticosteroids (see 1.5, 1.6)
    - antihistamines (e.g. diphenhydramine)
- Recurrence risks.

Clinical Competency

Take an appropriate history from a woman with skin disease:
- Diagnosis
- Drug therapy.

Perform an examination in a woman with skin disease.
Manage a case of chronic skin disease in pregnancy:
- Arrange and interpret appropriate investigations
- Institute and modify drug therapy
- Refer, where appropriate, for further assessment and treatment.

Manage a case of pregnancy-induced skin disease:
- Arrange and interpret appropriate maternal and fetal investigations
- Counsel regarding maternal and fetal risks
- Institute and modify drug therapy
- Plan pregnancy, delivery and postnatal care
- Refer for further assessment and treatment.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with skin disease.

Ability to perform and interpret appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and where appropriate modify a management plan.

Ability to liaise with dermatologists where appropriate.

Ability to counsel women about:
- Maternal and fetal risks
- Safety of topical therapies in pregnancy
- Recurrence risks.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at obstetric medicine and dermatology clinics.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.16 Malignant Disease

Objective

To be able to carry out, under supervision, appropriate assessment and management of women with previous or current malignant disease.

Knowledge Criteria

Maternal and fetal effects of cancer therapies:
- Radiotherapy
    - Fetal dose
    - Teratogenic and fetal risks
- Chemotherapy
    - Pharmacokinetics in pregnancy
    - Teratogenic and fetal risks.

Breast cancer:
- Pathology
- Prevalence
- Diagnosis in pregnancy, including examination, fine-needle aspiration, ultrasound
- Maternal and fetal risks
- Pregnancy and postnatal management
- Surgery
- Adjuvant chemo-and radiotherapy
- Indications for termination or preterm delivery
- Prognosis and recurrence risks
- Contraception.

Gynaecological and other cancer (cervical cancer, ovarian cancer, melanoma):
- Pathology
- Prevalence
- Diagnosis in pregnancy, including colposcopy and biopsy
- Maternal and fetal risks
- Pregnancy and postnatal management
- Surgery, including hysterectomy, salpingooophorectomy
- Adjuvant chemo-and radiotherapy
- Palliative care
- Prognosis and recurrence risks.

Clinical Competency

Take an appropriate history from a woman with suspected or prior malignancy:
- Diagnosis
- Previous procedures and surgery
- Drug therapy.

Perform a breast examination in pregnancy.

Manage a case of breast cancer in pregnancy:
- Arrange appropriate investigations
- Counsel regarding maternal and fetal risks, including management options (e.g. termination of pregnancy, preterm delivery)
- Plan pregnancy, delivery and postnatal care
- Refer for further assessment and treatment.

Manage a case of gynaecological or other malignancy in pregnancy:
- Arrange appropriate investigations
- Counsel regarding maternal and fetal risks, including management options (e.g. termination of pregnancy, preterm delivery)
- Plan pregnancy, delivery and postnatal care
- Refer for further assessment and treatment.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with malignant disease.

Ability to perform appropriate investigations.

Ability to formulate list of differential diagnoses.

Ability to formulate, implement and, where appropriate, modify a management plan.

Ability to liaise with primary care, palliative care, surgeons and oncologists.

Ability to counsel women about:
- Maternal and fetal risks
- Management options
- Prognosis and recurrence risks
- Breastfeeding
- Contraception.

Ability to act with empathy, honesty and sensitivity when breaking bad news.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. ICL/RCP/BMFMS Maternal Complications in Pregnancy).
- Attendance at obstetric medicine, breast and oncology clinics.
- RCOG Green-top Guideline *Pregnancy and Breast Cancer* (No. 12).
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

1.17 Clinical Scenarios

Objective

To be able to reach a diagnosis in women presenting with various clinical problems in pregnancy.

Knowledge Criteria

Presenting problems in pregnancy:
- Proteinuria (see 1.2)
- Abnormal renal function (see 1.2)
- Chest pain (see 1.3, 1.4)
- Palpitations (see 1.3)
- Heart murmur (see 1.3)
- Breathlessness (see 1.3, 1.5)
- Abdominal pain (see 1.6)
- Vomiting (see 1.6)
- Itching (see 1.6, 1.15)
- Abnormal liver function (see 1.6)
- Convulsions (see 1.9)
- Headache (see 1.9)
- Altered consciousness (see 1.9)
- Anaemia (1.11)
- Thrombocytopenia (1.11).

Causes (physiological and pathological).

Investigations:
- ECG
- Chest X-ray
- Echocardiogram
- Arterial blood gases
- Lung function tests.

Clinical Competency

Take an appropriate history and conduct an examination in a woman presenting with the symptom, sign or abnormality.

Manage a case of gynaecological or other malignancy in pregnancy:

- Arrange appropriate investigations
- Counsel regarding maternal and fetal risks, including management options (e.g. termination of pregnancy, preterm delivery)
- Plan pregnancy, delivery and postnatal care
- Refer for further assessment and treatment.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess a pregnant woman presenting with symptom, sign or abnormality.

Ability to formulate a list of differential diagnoses.

Ability to arrange and interpret appropriate investigations.

Ability to formulate a management plan.

Ability to reassure women about the safety of radiological investigations in pregnancy.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. Maternal Medicine).
- Attendance at general medicine clinics.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

Module 1. Medical Complications of Pregnancy

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Hypertension										
Chronic hypertension										
Pre-eclampsia with HELLP										
Pre-eclampsia with severe hypertension										
Pre-eclampsia with pulmonary oedema										
Pre-eclampsia with renal failure										
Eclampsia										
Renal disease										
Hydronephrosis										
Reflux nephropathy										
Glomerulonephritis										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Polycystic kidney disease										
Renal transplant recipient										
Acute renal failure (not related to pre-eclamptic toxaemia)										
Cardiac disease										
Congenital heart disease:										
Rheumatic heart disease										
Ischaemic heart disease										
Artificial heart valve										
Arrhythmia										
Marfan syndrome										
Peripartum cardiomyopathy										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Liver disease										
Primary biliary cirrhosis										
Chronic active hepatitis										
Obstetric cholestasis										
Acute fatty liver of pregnancy										
Respiratory disease										
Asthma										
Sarcoidosis										
Cystic fibrosis										
Restrictive lung disease (e.g. kyphoscoliosis)										
Acute respiratory distress syndrome/respiratory failure										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Pneumothorax										
Gastrointestinal disease										
Crohn's disease										
Ulcerative colitis										
Irritable bowel disease										
Reflux oesophagitis										
Hyperemesis gravidarum										
Diabetes										
Pre-existing diabetes without complications										
Pre-existing diabetes with retinopathy										
Pre-existing diabetes with nephropathy										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Pre-existing diabetes with autonomic neuropathy										
Pre-existing diabetes with vascular disease										
Gestational diabetes										
Other endocrine disease										
Hypothyroidism										
Hyperthyroidism										
Microprolactinoma										
Adrenal disease										
Diabetes insipidus										
Postpartum thyroiditis										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Neurological disease										
Epilepsy										
Migraine										
Multiple sclerosis										
Previous cardiovascular accident										
Myaesthenia gravis										
Idiopathic intracranial hypertension										
Spina bifida										
Bell's palsy										
Carpal tunnel syndrome										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Connective tissue disease										
Systemic lupus erythematosis										
Antiphospholipid syndrome (APS) without complications										
APS with thrombosis										
APS with fetal complications (growth restriction/stillbirth/pre-eclamptic toxaemia)										
Rheumatoid arthritis										
Mixed connective tissue disease										
Scleroderma										
Haematological disease										
Sickle cell disease										
Other haemoglobinopathies										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Haemophilia										
Von Willebrand's disease										
Immune thrombocytopenic purpura										
Thromboembolic disease										
Previous venous thromboembolism (VTE)										
Thrombophilia without previous VTE										
Thrombophilia with previous VTE										
Acute deep vein thrombosis										
Non-massive pulmonary embolism										
Psychiatric disease										
Anxiety										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Depression										
Bipolar affective disorder										
Schizophrenia										
Postnatal depression										
Puerperal psychosis										
Skin disease										
Eczema										
Psoriasis										
Prurigo/pruritic folliculitis										
Polymorphic eruption of pregnancy										
Pemphigoid gestationis										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Malignant disease										
Breast										
Substance abuse										
Alcohol										
Narcotics										
Cocaine and crack										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

Module 2. Genetics

2.1 Genetic Disorders

Objective

To be able to carry out appropriate counselling and management in families with a previous genetic disorder.

Knowledge Criteria

Genetics:

- Gene structure and function
- DNA as genetic material
- Replication, transcription and translation
- Mechanisms and effects of mutation
- Inheritance and susceptibility
- Patterns of inheritance of single genes
- Genetic heterogeneity (locus and allele)
- New mutations causing single-gene disorder
- Expression and penetrance
- Multifactorial inheritance (including summation and interaction gene effects, polymorphisms)
- Mitochondrial inheritance.

Service and laboratory aspects:

- Organisation and role of clinical genetics services
- DNA testing in clinical practice
- Ethical and societal issues
- Diagnostic, predictive and carrier testing
- Uses and limitations of laboratory tests
- Indications, methods and limitations, including failure and error rates, of:
    - cytogenetics
    - fluorescence in situ hybridisation (FISH)
    - polymerase chain reaction (PCR)
    - Southern and Northern blotting
    - gene tracking using restriction fragment length polymorphisms
    - enzyme and biochemical analysis
    - array comparative genomic hybridisatoin
    - maternal circulating fetal DNA.

Methods of prenatal diagnosis, including indications, techniques, complications:

- Ultrasound
- Amniocentesis
- Chorion villus sampling (CVS)
- Fetal blood sampling
- Fetal tissue biopsy.

Single-gene defects:

- Epidemiology and inheritance
- Effects of mutation and associated pathology
- Clinical and pathological features
- Prognosis
- Recurrence risks
- Prenatal diagnosis of the following defects:
    - cystic fibrosis
    - muscular dystrophy
    - myotonic dystrophy
    - fragile X
    - haemoglobinopathies (see also module 1.11)
    - haemophilias (see also module 1.11)
    - common inborn errors of metabolism.

Clinical Competency

Take an appropriate history and construct, where appropriate, a family tree in patients with or at risk of genetic disease.

Manage a woman with a personal or family history of genetic disease, including cystic fibrosis, myotonic dystrophy, muscular dystrophy, fragile X, haemoglobinopathy, haemophilia, inborn error of metabolism or syndromic anomaly (see 3.3).

Counsel about:

- Risk and impact of disease
- Information sources and support groups
- Prenatal diagnostic options, including risks timing of tests and results, accuracy)
- Management options after testing, including termination of pregnancy.

Arrange appropriate fetal and maternal investigations.

Refer, where appropriate, for further specialist and/or genetic counselling.

Plan care of current pregnancy and delivery.

Perform:
- Detailed ultrasound:
  - At appropriate gestation
  - Using appropriate technique, including transvaginal, Doppler, 3D/4D
- Amniocentesis
- Chorion villus sampling
- Fetal blood sampling or refer, where appropriate, for same
- Skin/muscle biopsy or refer, where appropriate, for same.

Professional Skills and Attitudes

Ability to identify women with or at risk of a genetic condition.

Ability to formulate, implement and where appropriate modify management plan.

Ability to liaise with clinical geneticist and associated laboratory disciplines, including cyto-and molecular genetics, and refer where appropriate.

Ability to counsel women and their partners about:
- Genetics in an understandable and non-directive way
- Fetal risks
- Prenatal screening and diagnostic options, including limitations of tests
- Treatment, management
- Reproductive options.

Ability to formulate management plan for this and future pregnancies.

Ability to support parent(s) and to respect confidentiality.

Ability to use genetic testing appropriately.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attendance at specialist paediatric clinics.
- Attachments in:
    - genetics
    - laboratory specialties (including cyto-and molecular genetics
    - neonatology
    - paediatric surgery
    - perinatal pathology.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions

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2.2 Chromosomal, genetic and genomic Disorders

Objectives

To be able to carry out appropriate counselling and management in families with a previous chromosomal disorder.

To be able to understand and supervise a programme of screening for chromosomal anomaly during pregnancy.

To be able to carry out appropriate counselling and management of fetal chromosome anomaly.

To be able to carry to appropriate counselling and management of rarer cytogenetic anomalies, including translocations, markers and mosaicism.

Knowledge Criteria

Chromosomes
Structure and function (see 3.2, 3.3)

- Cell division
- Types of abnormality, including structural rearrangements, trisomies, sex chromosome anomalies, extra markers, mosaicism.

Screening and diagnosis:

- Biochemical markers, including alphafetoprotein, unconjugated estriol, human chorionic gonadotrophin, pregnancy-associated plasma protein A, inhibin A
- Ultrasound markers:
    - 11–14 weeks (including nuchal translucency, nasal bone, ductus venosus Doppler, tricuspid regurgitation)
    - 18–21 weeks (including nuchal oedema, clinodactyly, echogenic bowel, pyelectasis, choroid plexus cysts, nasal bone, short femur/humerus)
    - circulating cell free fetal DNA

- Likelihood ratios and risk calculation
- Screening strategies
    - Accuracy (including detection rate, false positive rate)
    - Service and cost implications
- Laboratory diagnosis (including methods, failure and error rates):
    - cytogenetic analysis
    - FISH
    - PCR
    - array comparative genomic hybridisatoin
    - maternal circulating fetal DNA.

Mosaicism, including classification and management.

Principles and organisation of screening and diagnostic programme for chromosomal anomalies:
- HK Government Down syndrome screening program
- Role of regional screening coordinators
- Quality control and audit.

Chromosomal and submicroscopic chromosomal anomalies:
- Epidemiology
- Pathology
- Clinical and pathological features
- Prognosis
- Recurrence risks
- Prenatal diagnosis of the following chromosomal anomalies:
    - trisomy 21
    - trisomy 18
    - trisomy 13
    - Turner syndrome
    - Klinefelter syndrome
    - XXX
    - triploidy
    - structural rearrangement, including balanced and unbalanced translocation
    - marker chromosome
    - uniparental disomy
    - mosaicism
    - microdeletion / microduplication syndromes, pathogenic CNV

Clinical Competency

Take an appropriate history.

Manage a woman with a personal or family history of a chromosomal anomaly, including structural alterations:
- Risk and impact of anomaly
- Prenatal diagnostic options
- Management options after testing

Arrange appropriate fetal and parental investigations.

Refer where appropriate for further specialist and/or genetic counselling.

Plan subsequent care of this pregnancy.

Counsel women about screening for and diagnosis of chromosomal anomalies in pregnancy including:
- Screening options (biochemistry and ultrasound)
- Diagnostic tests (including laboratory methods, risks, accuracy and timing of results).

Manage a case of chromosomal anomaly diagnosed in pregnancy, including counselling about fetal and infant risks and long-term outcome of the following anomalies:
- Trisomy 21 (Down syndrome)
- Trisomy 18 (Edwards syndrome)
- Trisomy 13 (Patau syndrome)
- 45X (Turner syndrome)
- Triploidy
- Common sex chromosome anomalies (including 47XXY (Klinefelter syndrome), 47XXX)
- Structural rearrangements
- Markers
- Mosaicism.
- Micro-deletion / micro-duplication syndromes / CNV

Counsel about management options, including termination of pregnancy.

Refer, where appropriate, for further counselling and support.

Plan care of this pregnancy and delivery.

Perform:
- Ultrasound screening for chromosomal anomaly at 10–14 weeks, including:
    - nuchal translucency
    - nasal bone
    - ductus venosus Doppler
    - tricuspid valve regurgitation
- Ultrasound screening for chromosomal anomaly at 18–21 weeks, including:
    - nuchal oedema
    - nasal bone
    - pyelectasis
    - short femur/humerus
    - echogenic bowel
    - echogenic intracardiac focus
    - ventriculomegaly
    - major structural defect
    - risk calculation for trisomy 21 based on ultrasound (± biochemical) markers

- Amniocentesis
- Chorion villus sampling
- Fetal blood sampling or refer, where appropriate, for same
- Skin biopsy or refer, where appropriate, for same.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to counsel women and partners:
- Before a screening test
- After a positive result.

Ability to formulate, implement and, where appropriate, modify management plan in a woman at 'higher' risk of chromosomal anomaly.

Ability to formulate, implement and where appropriate modify management plan in a case with a chromosomal anomaly.

Ability to liaise with clinical geneticist and cytogenetics and refer where appropriate.

Ability to counsel women and their partners about:
- Fetal risks
- Prenatal screening and diagnostic options (including limitations of tests)
- Reproductive options.

Ability to formulate management plan for this and future pregnancies:
- Support parent(s)
- Respect confidentiality.

Ability to use chromosomal testing appropriately.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attendance at specialist paediatric clinics.
- Attachments in:
    - Genetics
    - Laboratory specialties, including cyto¬and molecular genetics, serum screening
    - Neonatology
    - Paediatric surgery
    - Perinatal pathology.
- Personal study.
- National Screening Committee Guidance on Down syndrome screening.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

2.3 Multiple Anomalies and Syndromic Disorders

Objectives

To be able to carry out appropriate counselling and management in families with a previous child with multiple anomalies or syndromic disorder.

To be able to carry out appropriate counselling and prenatal diagnosis in a fetus with multiple anomalies.

Knowledge Criteria

Screening and diagnosis:
- Ultrasound features of common syndromes and associations.
- Use of databases to aid diagnosis.

Syndromic anomalies and associations:
- Epidemiology
- Pathology
- Clinical features
- Prognosis
- Inheritance and recurrence risks
- Prenatal diagnosis, including ultrasound features, laboratory diagnosis (where applicable, see module 3.1).

Syndromic anomalies such as:
- DiGeorge
- Fryn's
- Beckwith–Wiedemann
- Meckel–Gruber
- Smith-Lemli-Opitz
- VATER (vertebral defects, imperforate anus, tracheo-oesophageal fistula, radial and renal dysplasia)/VACTERL (vertebral anomalies, anal atresia, cardiac abnormalities, tracheoesophageal fistula and/or oesophageal atresia, renal agenesis and dysplasia and limb defects).

Clinical Competency

Take an appropriate history.

Manage a woman with a personal or family history of syndromic anomaly, including:
- Counsel about risk and impact of disease
- Information sources and support groups
- Prenatal diagnostic options, including risks, timing of tests, results, accuracy
- Management options after testing, including termination of pregnancy
- Arrange appropriate fetal investigations
- Refer where appropriate for further specialist and/or genetic counselling
- Plan care of this pregnancy and delivery.

Manage a case of multiple fetal anomalies:
- Use computer database (e.g. London Dysmorphology Database, Online Mendelian Inheritance in Animals database) to reach differential diagnosis
- Counsel about possible diagnoses and implications
- Information sources and support groups Further prenatal diagnostic options where appropriate, including risks and accuracy
- Management options, including termination of pregnancy
- Arrange further fetal investigations where appropriate
- Refer where appropriate for further specialist and/or genetic counselling
- Plan care of this pregnancy and delivery.

Professional Skills and Attitudes

Ability to take a history and identify patients with, or at risk of a genetic condition.

Ability to diagnose fetal anomalies using ultrasound and to formulate differential diagnosis.

Ability to liaise with clinical geneticist and associated laboratory disciplines, including cyto-and molecular genetics, and refer where appropriate.

Ability to counsel women and their partners about:
- Possible diagnoses (including outcomes)
- Further investigations, including limitations of tests
- Treatment, management
- Reproductive options.

Ability to formulate management plan for current and future pregnancies.

Ability to support parent(s).

Ability to respect confidentiality.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine)
- Attendance at specialist paediatric clinics.

- Attachments in:
- Genetics
- Laboratory specialties, including cyto-and molecular genetics
- Neonatology
- Paediatric surgery
- Perinatal pathology.
- Dysmorphology databases.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

Module 2. Genetics

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Chromosomal anomalies										
Previous history of trisomy 21										
Previous history of trisomy 13/18										
Previous history of translocation, deletion										
Previous history of sex chromosome aneuploidy										
Affected fetus										
Trisomy 21										
Trisomy 18										
Trisomy 13										
45X										
47XXX, 47XXY										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Translocation/deletion										
Confined placental mosaicism										
Genetic anomalies (previous/family history/current)										
Muscular dystrophy										
Myotonic dystrophy										
Huntington's disease										
Fragile X										
Haemoglobinopathy										
Haemophilia/other bleeding disorder										
Inborn error of metabolism										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Syndromic anomalies (previous/family history/current)										
DiGeorge										
Beckwith–Wiedemann										
Meckel–Gruber										
Smith-Lemli-Opitz										
VATER/VACTERL associations										
Procedures										
Ultrasound screening for trisomy 21 (1st trimester)										
Ultrasound screening for trisomy 21 (2nd trimester)										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

Module 3. Structural Fetal Anomalies

3.1 Central Nervous System (CNS) Anomalies

Objectives

To be able to carry out appropriate assessment and management of a fetus with a CNS anomaly.

To understand the management, complications and outcomes of neonates with CNS anomalies.

Knowledge Criteria

Embryology:
- Brain and spinal cord, including postnatal development.

Pathology and epidemiology:
- Pathology of major CNS anomalies
- Incidence of CNS anomalies
- Risk factors
- Associated chromosomal, genetic and syndromic anomalies.

Screening and diagnosis:
- Ultrasound appearance of normal embryonic/fetal/neonatal CNS
- Biometric measurements, including transcerebellar diameter, ventricular size, cisterna magna
- Ultrasound appearances of CNS anomalies, including differential diagnosis
- Role of antenatal and postnatal MRI.

Management and outcome:
- Acrania, exencephaly and anencephaly
- Spinal bifida
- Encephalocele
- Holoprosencephaly
- Ventriculomegaly
- Dandy Walker spectrum
- Microcephaly
- Intracranial mass.

Recurrence risks and prevention
- CNS anomalies:
- Neural tube defects.

Pharmacology:
- Folic acid.

Clinical Competency

Take an appropriate history.

Perform an ultrasound scan to assess:
- Head shape, biometry
- Cavum, corpus callosum
- Thalami, cortex
- Ventricles, choroid plexus
- Cerebellum, cisterna magna
- Cerebral Doppler (see module 4.8).

Be able to diagnose and counsel about the following:
- Anencephaly, exencephaly
- Spina bifida, encephalocele
- Iniencephaly, microcephaly
- Ventriculomegaly (all degrees)
- Holoprosencephaly
- Dandy Walker spectrum
- Tumours, cysts
- Intracranial haemorrhage (see also module 4.9).

Manage a case of CNS anomaly including:
- Counsel regarding fetal and infant risks, including long-term health implications
- Arrange and perform appropriate fetal and maternal investigations (and MRI if appropriate)
- Refer where appropriate for further counselling

Plan delivery and appropriate neonatal support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform detailed ultrasound assessment of fetal CNS.

Ability to reach a differential diagnosis.

Ability to perform and interpret appropriate investigations.

Ability to formulate, implement and, where appropriate, modify management plan.

Ability to liaise with neonatologists, paediatric neurologists and paediatric surgeons, where appropriate, including appropriate referral for second opinion.

Ability to counsel women and their partners about:

- Fetal (and maternal) risks
- Neonatal management
- Long-term outcome
- Postnatal or postmortem findings
- Recurrence risks.
- Ability to formulate management plan for future pregnancy.
- Ability to support parent(s).

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attendance at paediatric neurology clinics.
- Attachments in:
- Neonatology
- Paediatric surgery
- Perinatal pathology.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.2 Cardiac Anomalies

Objective

To be able to carry out appropriate assessment and management of a fetus with a cardiac anomaly.

Knowledge Criteria

Embryology:
- Heart and cardiovascular system
- Circulatory adaptations at birth.

Pathology and epidemiology:
- Pathology of major cardiac anomalies
- Incidence of cardiac anomalies
- Risk factors, including family history
- Associated chromosomal and genetic (including 22q deletions) syndromic anomalies
- Mechanisms of tachy-and brady-arrhymthmias.

Screening and diagnosis:
- Ultrasound appearance of normal fetal heart
- Biometric measurements, including Chamber sizes
- Ultrasound appearances of cardiac anomalies, including differential diagnosis
- Role of 3-and 4D ultrasound (spatio-temporal image correlation)
- Role of M-mode and Doppler echocardiography, including normal transvalvular velocities.

Management and outcome:
- Septal defects
- Hypoplastic heart syndromes
- Outflow tract anomalies
- Cardiac tumours
- Arrhythmias.

Recurrence risks of cardiac anomalies.

Pharmacology, including adverse effects of drugs used to treat fetal arrhythmias:
- digoxin
- flecainide
- amiodarone
- adenosine.

Clinical competency

Take an appropriate history.

Perform echocardiography to assess:
- Cardiac size, position
- Venous system, including ductus venosus
- Atria and ventricles
- Outflow tracts
- Arterial system, including ductus arteriosus
- Heart rate and rhythm.

Diagnose and counsel about the following:
- Septal defects
- Valvular abnormalities and hypoplastic heart:
- Mitral stenosis/atresia
- Aortic stenosis/atresia
- Tricuspid stenosis/atresia
- Pulmonary stenosis/atresia
- Outflow tract anomalies (coarctation, transposition, double outlet ventricle)
- Cardiac tumour
- Arrhythmia.

Manage a case of cardiac anomaly including:
- Counsel about fetal and infant risks, including long-term health implications
- Arrange and perform appropriate fetal and maternal investigations, including M-mode, Doppler echocardiography
- Refer for further assessment and counselling
- Institute and modify anti-arrhythmic therapy
- Plan delivery and appropriate neonatal support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform echocardiography, including Doppler and M-mode.

Ability to reach a differential diagnosis.

Ability to formulate, implement and, where appropriate, modify management plan.

Ability to liaise with paediatric cardiologists and neonatologists, including appropriate referral for second opinion.

Ability to counsel women and their partners about:
- Fetal risks
- Neonatal management
- Long-term outcome
- Postnatal or postmortem findings
- Recurrence risks.

Ability to formulate management plan for future pregnancy.

Ability to support parent(s).

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attendance at paediatric cardiology clinics.
- Attachments in neonatology and perinatal pathology.
- Personal study.

Evidence
- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.3 Genitourinary Anomalies

Objective

To be able to carry out appropriate assessment, counselling and management of a fetus with a genitourinary anomaly and to understand the management, complications and outcomes of neonates with genitourinary anomalies.

Knowledge Criteria

Embryology:
- Genitourinary (GU) system (including physiology of the fetal urinary system).
- Functional adaptations after birth.

Pathology and epidemiology:
- Pathology of major GU anomalies
- Incidence of GU anomalies
- Risk factors
- Associated chromosomal/genetic/syndromic anomalies.

Screening/diagnosis:
- Ultrasound appearance of normal embryonic/fetal/neonatal urinary tract
- Ultrasound appearances of GU anomalies, including differential diagnosis
- Biochemical measurement of fetal urine function
- Neonatal/paediatric investigations, including cystourethrography, MAG3/DMSA scanning.

Management/outcome:
- Renal agenesis
- Renal cystic disease
- Hydronephrosis
- Duplex kidney
- Lower urinary tract obstruction
- Bladder/cloacal exstrophy
- Indications for and risks of:
    - amnioinfusion (see 3.11)
    - vesicocentesis
    - vesicoamniotic shunting.

Recurrence risks:
- GU anomalies.

Clinical Competency

Take an appropriate history.

Perform ultrasound scan to assess:
- Renal size
- Renal parenchyma and collecting system
- Ureters and bladder
- Genitalia
- Renal artery Doppler.

Be able to diagnose and counsel about:
- Renal agenesis
- Renal cystic disease (autosomal dominant polycystic kidney disease, infantile polycystic kidney disease)
- Multicystic/dysplastic kidney
- Renal cyst
- Pyelectasis/hydronephrosis
- Megacystis ± megaureter
- Ambiguous genitalia.

Manage a case of GU anomaly including:
- Counsel regarding fetal/infant risks, including long-term health implications
- Arrange/perform appropriate fetal and maternal investigations, including amnioinfusion (see 3.11) and vesicocentesis
- Perform vesicoamniotic shunting or refer, where appropriate, for same
- Refer, where appropriate, for further counselling
- Plan delivery and appropriate neonatal support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform detailed ultrasound assessment of fetal GU system.

Ability to reach a differential diagnosis.

Ability to perform and interpret appropriate investigations, including vesicocentesis.

Ability to formulate, implement and, where appropriate, modify management plan.

Ability to liaise with neonatologists, paediatric nephrologists, paediatric surgeons, where appropriate, including appropriate referral for second opinion including vesicoamniotic shunting.

Ability to counsel women and their partners about:
- Fetal risks (including risks of diagnostic and therapeutic procedures)
- Neonatal management
- Long-term outcome
- Postnatal or postmortem findings
- Recurrence risks
- Formulate management plan for future pregnancy.

Ability to support parent(s).

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attendance at paediatric nephrology clinics.

Attachments in:
- Neonatology
- Perinatal pathology
- Personal study

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.4 Pulmonary Anomalties

Objective

To be able to carry out appropriate assessment, counselling and management of a fetus with a pulmonary anomaly and to understand the management, complications and outcomes of neonates with pulmonary anomalies.

Knowledge Criteria

Embryology:
- Trachea, lungs and diaphragm
- Functional adaptations after birth.

Pathology and epidemiology:
- Pathology of pulmonary anomalies
- Incidence of pulmonary anomalies
- Risk factors
- Associated chromosomal and genetic/syndromic anomalies.

Screening and diagnosis:
- Ultrasound appearance of normal embryonic/fetal thorax
- Ultrasound appearances of pulmonary anomalies (including differential diagnosis)
- Role of antenatal and postnatal MRI/CT imaging.

Management/outcome:
- Laryngeal/tracheal atresia (including Principles of EXIT procedure)
- Cystic adenomatoid malformation of lung
- Pulmonary sequestration
- Diaphragmatic hernia
- Pleural effusion
- Indications for/risks of:
    - thoracocentesis
    - pleuroamniotic shunting.

Recurrence risks of pulmonary anomalies.

Clinical Competency

Take an appropriate history.

Perform ultrasound scan to assess:
- Chest size and shape
- Mediastinal shift
- Ribs
- Lung parenchyma
- Diaphragm

Be able to diagnose and counsel about the following:
- Laryngeal atresia/stenosis (CHAOS)
- CAML
- Pulmonary sequestration
- Diaphragmatic hernia
- Pleural effusion

Manage a case of thoracic anomaly including:
- Counsel regarding fetal and infant risks, including long-term health implications
- Arrange and perform appropriate fetal investigations, including thoracocentesis
- Perform pleuroamniotic shunting or refer, where appropriate, for same
- Refer where appropriate for further counselling
- Plan delivery and appropriate neonatal support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to:
- Perform detailed ultrasound assessment of fetal thorax
- Reach a differential diagnosis
- Perform and interpret appropriate investigations (including thoracocentesis).

Ability to formulate, implement and, where appropriate, modify management plan.

Ability to liaise with neonatologists, paediatric chest physicians, paediatric surgeons where appropriate, including appropriate referral for second opinion including pleuroamniotic shunting).

Ability to counsel women and their partners about:
- fetal risks (including risks of diagnostic and therapeutic procedures)
- neonatal management
- long-term outcome
- postnatal or postmortem findings
- recurrence risks

Ability to formulate management plan for future pregnancy and to support parent(s).

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine). Attendance at paediatric chest clinics.
- Attachments in:
    - Neonatology
    - Paediatric surgery
    - Perinatal pathology.
    - Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.5 Abdominal wall and Gastrointestinal Anomalies

Objective

To be able to carry out appropriate assessment, counselling and management of a fetus with an abdominal wall or gastrointestinal (GI) anomaly and to understand the management, complications and outcomes of neonates with abdominal-wall or gastrointestinal anomalies.

Knowledge Criteria

Embryology:
- Abdominal wall
- Gastrointestinal tract.

Pathology and epidemiology:
- Pathology of abdominal wall and GI anomalies
- Incidence of abdominal wall and GI anomalies
- Risk factors
- Associated chromosomal/genetic anomalies.

Screening and diagnosis:
- Ultrasound appearance of normal embryonic and fetal abdominal wall and GI tract
- Ultrasound appearances of abdominal wall and GI anomalies, including differential diagnosis.

Management and outcome:
- Gastroschisis
- Umbilical hernia/exomphalos
- Oesophageal atresia/tracheo-oesophageal fistula
- Bowel atresia (small and large)
- Meconium ileus
- Hepatic calcification/mass
- Echogenic bowel
- Abdominal cyst
- Isolated ascites.

Recurrence risks of abdominal wall and GI anomalies.

Clinical Competency

Take an appropriate history.

Perform ultrasound scan to assess:
- Abdominal shape and biometry
- Abdominal wall/cord insertion
- Stomach, small and large bowel
- Liver, gallbladder
- Intrahepatic vein and ductus venosus.

Diagnose and counsel about the following:
- Gastroschisis/body wall defect
- Umbilical hernia/exomphalos
- Absent/enlarged stomach
- Duodenal, small and large bowel atresia
- Meconium ileus
- Hepatic calcification/mass
- Echogenic bowel
- Abdominal cyst
- Ascites.

Manage a case of abdominal wall /GI anomaly, including:
- Counsel regarding fetal/infant risks (including long term health implications)
- Arrange/perform appropriate fetal investigations
- Refer where appropriate for further
- Counselling
- Plan delivery and appropriate neonatal support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform detailed ultrasound assessment of fetal abdominal wall and GI tract.

Ability to reach a differential diagnosis:
- Perform and interpret appropriate investigations.

Ability to formulate, implement and, where appropriate, modify management plan.

Ability to liaise with neonatologists and paediatric surgeons, where appropriate, including appropriate referral for second opinion.

Ability to counsel women and their partners about:
- Fetal risks
- Neonatal management
- Long term outcome
- Postnatal or postmortem findings
- Recurrence risks
- Formulate management plan for future pregnancy
- Support parent(s)

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attachments in:
    - neonatology
    - paediatric surgery
    - perinatal pathology.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.6 Face and Neck Anomalies

Objective

To be able to carry out appropriate assessment, counselling and management of a fetus with a neck or facial anomaly and to understand the management, complications and outcomes of neonates with neck or facial anomalies.

Knowledge Criteria

Embryology:
- Fetal face
- Fetal neck
- Fetal thyroid.

Pathology and embryology:
- Pathology of neck and facial anomalies
- Incidence of neck and facial anomalies
- Risk factors
- Associated chromosomal/genetic/syndromic anomalies.

Screening and diagnosis:
- Ultrasound appearance of normal fetal neck and face
- Ultrasound appearances of neck and facial anomalies, including differential diagnosis
- Role of antenatal 3D ultrasound/MRI.

Management and outcome of:
- Cystic hygroma
- Facial cleft
- Micrognathia
- Macroglossia
- Anopthalmia
- Fetal goitre.

Recurrence risks of neck and facial anomalies.

Clinical Competency

Take an appropriate history.

Perform ultrasound scan to assess:
- Head shape and biometry, including orbital diameters
- Face and palate
- Neck
- Thyroid.

Diagnose and counsel about the following:
- Cystic hygroma
- Facial cleft
- Micrognathia
- Anopthalmia
- Macroglossia
- Fetal goitre
- Absent/hypoplastic nasal bone.

Manage a case of neck/facial anomaly including:
- Counsel regarding fetal/infant risks (including long-term health implications)
- Arrange and perform appropriate fetal investigations
- Refer, where appropriate, for further counselling
- Plan delivery and appropriate neonatal support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform detailed ultrasound assessment of fetal neck and face.

Ability to reach a differential diagnosis.

Ability to perform and interpret appropriate investigations.

Ability to formulate, implement and, where appropriate, modify management plan.

Ability to liaise with neonatologists, paediatric surgeons and facial cleft team, where appropriate, including appropriate referral for second opinion.

Ability to counsel women and their partners about:
- Fetal risks
- Neonatal management
- Long-term outcome
- Postnatal or postmortem findings
- Recurrence risks.

Ability to formulate management plan for future pregnancy and support parent(s).

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attachments in:
    - neonatology
    - paediatric surgery
    - perinatal pathology.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.7 Skeletal Anomalies

Objective

To be able to carry out appropriate assessment, counselling and management of a fetus with a skeletal anomaly and to understand the management, complications and outcomes of neonates with skeletal anomalies.

Knowledge Criteria

Embryology:
- Fetal skeleton and spine.

Pathology and embryology:
- Pathology of skeletal anomalies
- Incidence of skeletal anomalies
- Risk factors
- Associated chromosomal/genetic/syndromic anomalies.

Screening and diagnosis:
- Ultrasound appearance of normal fetal skeleton
- Ultrasound appearances of skeletal anomalies, including differential diagnosis
- Role of antenatal 3D ultrasound/MRI.

Management and outcome of:
- Thanatophoric dysplasia
- Achondroplasia
- Achondrogenesis
- Osteogenesis imperfecta
- Camptomelic dysplasia
- Talipes
- Polydactyly
- Limb reduction defect
- Sirenomelia
- Sacral agenesis
- Hemivertebra
- Fetal akinesia/hypokinesia sequence

Recurrence risks of skeletal anomalies.

Clinical Competency

Take an appropriate history.

Perform ultrasound scan to assess:
- Long-bone shape and biometry
- Ribs and spine
- Mineralisation of skeleton
- Feet and hands
- Joints
- Fetal tone and movements.

Diagnose and counsel about the following:
- Micromelia (due to lethal and non-lethal dysplasias)
- Talipes
- Polydactyly
- Limb reduction defect
- Scoliosis
- Sirenomelia
- Sacral agenesis
- Scoliosis (due to hemivertebra)
- Fetal akinesia/hypokinesia sequence.

Manage a case of skeletal anomaly, including:
- Counsel regarding fetal/infant risks, including long-term health implications
- Arrange and perform appropriate fetal investigations
- Refer where appropriate for further counselling Plan delivery and appropriate neonatal support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform detailed ultrasound assessment of fetal skeleton.

Ability to reach a differential diagnosis.

Ability to perform and interpret appropriate investigations.

Ability to formulate, implement and, where appropriate, modify management plan, liaise with geneticists, neonatologists and orthopaedic surgeons, where appropriate, including appropriate referral for second opinion.

Ability to counsel women and their partners about:

- Fetal risks
- Neonatal management
- Long-term outcome
- Postnatal or postmortem findings
- Recurrence risks.

Ability to formulate management plan for future pregnancy and support parent(s).

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attachments in:
    - neonatology
    - paediatric surgery
    - perinatal pathology.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.8 Fetal Tumours

Objective

To be able to carry out appropriate assessment, counselling and management of a fetus with a teratoma and to understand the management, complications and outcomes of neonates with teratoma.

Knowledge Criteria

Embryology:
- Fetal lymphangiomas and teratomas.

Pathology and embryology:
- Pathology of fetal lymphangiomas and teratomas
- Incidence of fetal tumours.

Screening and diagnosis:
- Ultrasound appearances of fetal lymphangiomas/teratomas (including differential diagnosis of complex masses)
- Role of antenatal 3D ultrasound/MRI.

Management and outcome of:
- Cervical lymphangioma/teratoma
- Sacrococcygeal teratoma.

Recurrence risks of fetal teratomas.

Clinical Competency

Take an appropriate history.

Perform ultrasound scan of a teratoma to assess:
- size, position and relationship to adjacent structures
- structure, including blood flow.

Be able to diagnose and counsel about the following:
- cervical teratoma
- sacrococcygeal teratoma.

Manage a case of fetal teratoma, including:
- Counsel regarding fetal/infant risks, including long-term health implications
- Arrange and perform appropriate fetal investigations
- Refer where appropriate for further counselling
- Plan delivery and appropriate neonatal support, including, where appropriate, EXIT procedure.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform detailed ultrasound assessment of a fetal tumour.

Ability to reach a differential diagnosis.

Ability to formulate, implement and where appropriate modify management plan.

Ability to liaise with neonatologists, paediatric and ENT surgeons, where appropriate, including appropriate referral for second opinion.

Ability to counsel women and their partners about:
- Fetal risks
- Neonatal management
- Long term outcome
- Postnatal or postmortem findings
- Delivery, including EXIT procedure.

Ability to formulate management plan for future pregnancy and support parent(s).

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attachments in:
    - neonatology
    - paediatric surgery
    - perinatal pathology.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.9 Fetal Hydrops

Objective

To be able to carry out appropriate assessment, counselling and management of a fetus with hydrops fetalis and to understand the management, complications and outcomes of neonates with congenital hydrops.

Knowledge Criteria

Pathology and embryology:
- Pathology of fetal hydrops, including Immune and non-immune causes (see also 4.8)
- Incidence of fetal hydrops
- Risk factors
- Associated chromosomal, genetic and syndromic anomalies.

Diagnosis:
- Ultrasound appearance of fetal hydrops, including differential diagnosis
- Role of echocardiography (see 3.2), antenatal 3D ultrasound/MRI and fetal blood sampling.

Management and outcome:
- Red cell alloimmunisation (see 4.8)
- Cardiac arrhythmias (see 3.2)
- Other non-immune causes of hydrops

Recurrence risks of immune and non-immune hydrops.

Clinical Competency

Take an appropriate history.

Perform ultrasound scan to assess:
- Cause of hydrops, including echocardiography (see 3.2) and middle cerebral artery Doppler (see 4.8)
- Severity of hydrops (including amniotic fluid volume (see 3.10)
- Fetal condition (see 4.3).

Be able to diagnose and counsel about the following:
- Immune hydrops (see also 4.8)
- Non-immune hydrops.

Manage a case of fetal hydrops including:

- Counsel regarding fetal/infant risks, including long term health implications
- Arrange and perform appropriate maternal investigations
- Perform fetal blood sampling (with or without transfusion or refer, where appropriate, for same
- Refer, where appropriate, for further counselling
- Plan delivery and appropriate neonatal support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform detailed ultrasound assessment of fetal hydrops.

Ability to reach a differential diagnosis.

Ability to perform and interpret appropriate investigations.

Ability to formulate, implement and, where appropriate, modify management plans, liaise with neonatologists, haematologists and geneticists where appropriate, including referral for second opinion. Ability to counsel women and their partners about:

- Fetal risks
- Maternal risks
- Neonatal management
- Long term outcome
- Postnatal or postmortem findings
- Recurrence risks.

Ability to formulate management plan for a future pregnancy.

Ability to support parent(s).

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attachments in:
    - neonatology
    - paediatric surgery
    - perinatal pathology.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.10 Multiple Pregnancies

Objective

To be able to carry out appropriate assessment, counselling and management of abnormalities in multiple pregnancies to understand the management, complications and outcomes of abnormalities in twins

Knowledge Criteria

Embryology:
- Mono-and dizygous twinning (see 4.6)
- Placentation: chorionicity/amnionicity (see 4.6).

Pathology and embryology:
- Pathology of abnormalities related to twinning and twin placentation, including twin-to-twin transfusion syndrome (TTTS), twin reversed arterial perfusion (TRAP), TAPS, sIUGR and conjoining
- Incidence of abnormalities related to twinning
- Risk factors for twinning and related anomalies.

Screening and diagnosis:
- Ultrasound determination of zygosity/chorionicity
- Chorionicity and amnionicity
- Ultrasound appearances of abnormalities related to twinning, including differential diagnosis
- Invasive procedures in multiple pregnancies.

Management/outcome:
- Triplet and higher-order multiple pregnancy
- Discordant anomalies in multiples
- TRAP sequence
- Conjoined twins
- TTTS & TAPS
- Discordant fetal growth (see 4.3).

Clinical Competency

Take an appropriate history.

Perform ultrasound scan in multiple pregnancy to assess:
- Chorionicity and amnionicity
- Fetal anatomy
- Fetal growth (see 4.3).

Diagnose and counsel about the following:
- Multiple pregnancy with discordant fetal abnormality
- TRAP sequence
- Conjoined twin
- TTTS.

Manage a case of multiple pregnancy with fetal abnormality including:
- Counsel regarding fetal/infant risks, including Selective feticide and laser ablation
- Arrange and perform appropriate fetal and maternal investigations (including, where appropriate, fetal karyotyping)
- Refer where appropriate for further
- Counselling/management
- Perform selective feticide or refer, where appropriate, for same
- Plan delivery and appropriate neonatal support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform detailed ultrasound assessment of a multiple pregnancy with a fetal anomaly.

Ability to reach a differential diagnosis.

Ability to formulate, implement and, where appropriate, modify management plan.

Ability to liaise with fetal medicine subspecialists, neonatologists and paediatric surgeons, where appropriate, including appropriate referral for second opinion.

Ability to counsel women and their partners about:

- Fetal risks, including selective feticide and laser ablation
- Neonatal management
- Long-term outcome Postnatal or postmortem findings Delivery. Ability to formulate management plan for a future pregnancy.

Ability to support parent(s).

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attachments in:
    - neonatology
    - paediatric surgery
    - perinatal pathology.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.11 Disorders of Amniotic Fluid

Objective

To be able to carry out appropriate assessment, counselling and management of a pregnancy with abnormal amniotic fluid.

Knowledge Criteria

Embryology and physiology:
- Placenta and membranes
- Formation and function of amniotic fluid.

Pathology and embryology:
- Pathology of disorders of amniotic fluid, including secondary effects of early amnion rupture and oligohydramnios
- Incidence of amniotic fluid disorders
- Risk factors
- Associated chromosomal, genetic and syndromic anomalies.

Diagnosis:
- Ultrasound measurement of amniotic fluid
- Diagnosis of oligohydramnios and hydramnios, including differential diagnosis
- Invasive procedures in multiple pregnancies, including risks and indications of amnioinfusion and amnioreduction.

Management/outcome:
- Oligo- and anhydramnios
- Hydramnios
- Indications and risks:
  - Amnioinfusion (see 3.3)
  - Amnioreduction.

Pharmacology:
- Prostaglandin synthase inhibitors.

Clinical Competency

Take an appropriate history.

Perform ultrasound scan to assess amniotic fluid volume.

Diagnose and identify cause of:
- Oligo-and an-hydramnios, including rupture of membranes (see 4.5), renal anomaly (see 3.3), fetal growth restriction (see 4.3), postmaturity.
- Hydramnios, including gastrointestinal anomaly (see 3.5), neuromuscular anomaly, maternal diabetes (see 1.7), placental angioma.

Manage a case of oligo/an-hydramnios, including:
- Counsel regarding fetal and infant risks
- Arrange and perform appropriate fetal investigations, including amnioinfusion
- Institute appropriate maternal and fetal monitoring
- Refer, where appropriate, for further counselling
- Plan delivery and appropriate neonatal support.

Manage a case of hydramnios, including:
- Counsel regarding fetal/infant risks, including Preterm delivery
- Arrange and perform appropriate fetal and maternal investigations
- Refer, where appropriate, for further counselling
- Institute appropriate maternal and fetal monitoring Institute, where appropriate, maternal medical therapy
- Perform, where appropriate, amnioreduction
- Plan delivery and appropriate neonatal support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform detailed ultrasound assessment of amniotic fluid.

Ability to reach a differential diagnosis.

Ability to perform and interpret appropriate investigations.

Ability to formulate, implement and, where appropriate, modify management plan and to liaise with neonatologists, where appropriate (including appropriate referral for second opinion).

Ability to:
- Counsel women and their partners about
- Fetal and neonatal risks
- Maternal risks
- Neonatal management
- Postnatal or postmortem findings
- Recurrence risks
- Support parent(s).

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attachments in:
    - neonatology
    - paediatric surgery
    - perinatal pathology.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.12 Termination of Pregnancy

Objective

To be able to carry out counselling and management of families undergoing termination of pregnancy for fetal anomaly.

Knowledge Criteria

Law and ethics:
- Abortion law
- Ethics issues relating to termination of pregnancy for fetal anomaly
- Guidance on use of feticide.

Epidemiology:
- Incidence of and indications for termination of pregnancy for fetal anomaly
- Rates of termination of pregnancy for fetal anomalies and factors influencing decision.

Pathology:
- Consent for postmortem (and tissue retention)
- Conduct of postmortem examination.

Management (including methods, complications):
- Medical termination of pregnancy
- Surgical termination of pregnancy, including suction aspiration and dilatation and evacuation
- Feticide
- Impact of gestational age on complications (physical and psychological).

Pharmacology:
- Mifepristone
- Prostaglandin analogues, including gemeprost, misoprostol (see 4.1)
- Potassium chloride.
- Bereavement process and milestones; management.

Clinical Competency

Manage a case of major fetal anomaly.

Counsel regarding:
- Risk/impact of handicap associated with anomaly
- Feticide
- Methods of termination of pregnancy (medical and surgical)
- Complications of termination of pregnancy
- Postmortem
- Aftercare.

Plan termination of pregnancy and post-termination of pregnancy care.

Arrange appropriate fetal and maternal investigations, including postmortem.

Refer, where appropriate, for further counselling.

Conduct post-termination of pregnancy counselling.

Perform:
- Medical termination of pregnancy or refer, where appropriate, for same
- Vacuum aspiration and dilatation and evacuation or refer, where appropriate, for same
- Feticide or refer, where appropriate, for same
- Supportive counselling
- Post-termination of pregnancy counselling, including:
    - postmortem findings, where appropriate
    - recurrence risks
    - management plan for future pregnancy.

Professional Skills and Attitudes

Ability to reach a definitive diagnosis of major fetal anomaly, where possible.

Ability to assess risks of death and/or handicap.

Ability to counsel women and their partners about:
- Risks of death/handicap
- Option of termination of pregnancy with or without feticide.

Ability to formulate, implement and, where appropriate, modify management plan for termination of pregnancy, including post-termination of pregnancy review, liaise with midwives, neonatologists and pathologists, where appropriate.

Ability to counsel women and their partners about:
- Procedure and risks of termination of pregnancy
- Postmortem.

Ability to support women and their partners.
Ability to refer, where appropriate, for further counselling and support.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. RCOG/BMFMS Fetal Medicine).
- Attachments in:
    - neonatology
    - paediatric surgery
    - perinatal pathology.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

3.13 Preconception Counselling

Objective

To be able to carry out preconception counselling in families at increased risk of fetal anomaly, including those with family history, prior anomaly, medical disorder or exposure to teratogenic drugs.

Knowledge Criteria

Preconception counselling.

Assessment of risk of fetal anomaly:
- Personal/family history of genetic disorder
- Prior chromosomal disorder/advanced age
- Prior structural anomaly
- Current medical disorder e.g. diabetes
- Teratogen exposure
- Investigations, including genetic testing
- Methods of screening and diagnosis
- Alternative options, including assisted conception and preimplantation diagnosis.

Teratogenicity:
- Mechanisms of teratogenicity
- Information sources, including National Teratology Centre
- Teratogenetic effects of commonly used drugs including:
    - lithium
    - warfarin
    - anti-epileptic drugs
    - ACE inhibitors
    - anti-neoplastic drugs
- Teratogenic effects of radiological investigations.

Clinical Competency

Take an appropriate history.

Counsel an ‘at risk’ woman and her family preconceptually about:
- Risks of fetal anomaly
- Screening/diagnostic options.

Refer, where appropriate, to clinical geneticist or fetal medicine specialist.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to assess risks of fetal anomaly, to liaise with clinical geneticists, fetal medicine specialists, physicians, teratologists and refer where appropriate.

Ability to counsel women and their partners about:
- Screening/diagnostic options.
- Management plan for future pregnancy.

Training Support

- Observation of and discussion with senior medical staff.
- Sessions in clinical genetics.
- Personal study

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

Module 3. Structural Fetal Abnormalities

■ = Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Central Nervous System Anomalies										
Anencephaly										
Spina bifida										
Ventriculomegaly										
Dandy Walker malformation and variant										
Holoprosecencephaly										
Choroid plexus cyst										
Cardiac Anomalies										
Septal defects										
Hypoplastic heart										
Outflow tract anomalies										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Arrhythmia										
Genitourinary Anomalies										
Renal agenesis										
Hydronephrosis with renal pelvis ≤ 15 mm										
Hydronephrosis with renal pelvis > 15 mm										
Multicystic kidney										
Polycystic kidney disease (autosomal recessive/dominant)										
Megacystis/lower urinary tract obstruction										
Pulmonary Anormalies										
Cystic adenomatoid malformation										
Sequestration										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Diaphragmatic hernia										
Pleural effusion										
Laryngeal atresia										
Abdominal wall and Gastrointestinal Anomalies										
Gastroschisis										
Exomphalos										
Echogenic bowel										
Oesophageal atresia										
Bowel atresia										
Abdominal cyst										
Ascites										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Face and Neck Anomalies										
Nuchal oedema and increased nuchal translucency										
Cystic hygroma										
Facial cleft										
Skeletal Anomalies										
Lethal skeletal dysplasia										
Non-lethal skeletal dysplasia										
Talipes										
Limb reduction defect										
Fetal akinesia/hypokinesia sequence										
Sacral agenesis and syrenomelia										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Hydrops										
Immune hydrops										
Non-immune hydrops										
Multiple pregnancy										
Twin-to-twin transfusion syndrome										
Twins with discordant anomaly										
Procedures										
Preconception counselling										
Fetal echocardiography										
Amniocentesis										
Twin amniocentesis										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Chorionic villus sampling										
Amnioinfusion										
Amnioreduction										
Vesicocentesis										
Shunt (pleuro- and vesicoamniotic)										
Placental laser										
Counselling for termination of pregnancy										
Feticide										
Selective pregnancy reduction										
Fetal postmortem examination										
Fetal magnetic resonance examination										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Paediatric surgery										
Abdominal wall defect										
Diaphragmatic hernia										
Bowel atresia										
Spina bifida										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

Module 4 Antenatal Complications

4.1 Miscarriage and Fetal Death

Objective

To be able to carry out appropriate assessment and management of women with fetal death before and after 24 weeks of gestation.

To be able to carry out assessment and management of women with trophoblastic disease.

To be able to carry out assessment and management of women with suspected cervical weakness.

Knowledge Criteria

Pathophysiology:
- Fetal death (early and late)
- Cervical weakness
- Trophoblastic disease.

Epidemiology:
- Incidence of miscarriage/fetal death
- Risk factors.

Screening: Cervical length (see 4.5).

Diagnosis, management and outcome:
- Fetal death
- Cervical weakness, including cervical cerclage
- Trophoblastic disease, including registration and principles of follow-up.

Pharmacology:
- Including adverse effects of drugs used in miscarriage/fetal death:
    - mifepristone
    - prostaglandin analogues.

Clinical Competency

Take an appropriate medical and obstetric history.

Manage a case of fetal death, including:
- Ultrasound diagnosis
- Arrange appropriate investigations
- Plan delivery and post-delivery care (see 3.12)
- Indications for aspirin/low-molecular-weight heparin.

Manage a case of suspected cervical weakness including:
- Perform and interpret ultrasound measurement of cervical length
- Appropriate selection of cases for surgical intervention
- Perform elective and emergency cervical cerclage.

Manage a case of trophoblastic disease including:
- Ultrasound diagnosis
- Arrange appropriate investigations, registration and follow-up
- Perform uterine evacuation.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform and interpret ultrasound in women with suspected fetal death and cervical weakness.

Ability to formulate, implement and, where appropriate, modify a management plan for fetal death and suspected cervical weakness.

Ability to perform elective and emergency cervical cerclage.

Ability to liaise with other services, e.g. bereavement support.

Ability to formulate, implement and, where appropriate, modify a management plan for women with trophoblastic disease.

Ability to counsel women and their partners about:

- Empathy in bereavement support
- Consent for postmortem
- Postmortem findings.

Training support

- Observation of and discussion with senior medical staff.
- Sessions in clinical genetics
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

4.2 Poor and Failed Placentation

Objective

To be able to carry out appropriate assessment and management of women with previous placental disease.

To be able to carry out appropriate assessment and management of women with biochemical/ultrasound markers of poor placentation.

Knowledge Criteria

Normal placental development:
- Vascular development, including mechanisms of spiral artery transformation
- Endocrine function.

Placental pathophysiology:
- Pre-eclampsia (see 1.1)
- Fetal growth restriction
- Placental abruption (see 4.4)
- Fetal death (see 4.1).

Screening, Including Indications for and predictive abilities of:
- Biochemical screening (alphafetoprotein, human chorionic gonadotrophin and other Down syndrome markers)
- Uterine artery Doppler
- Placental morphology
- Thrombophilia screening.

Pharmacology, Including adverse effects of drugs used in prevention of poor placentation/fetal death:
- Aspirin
- Low-molecular-weight heparin
- Vitamins C and E.

Clinical Competency

Take an appropriate medical and obstetric history:
- Family history
- Outcome of previous pregnancies.

Perform and interpret an ultrasound examination to screen for placental disease:
- Uterine artery Doppler
- Placental morphology.

Manage a case at risk of poor placentation based on previous history or positive screening:
- Arrange appropriate investigations
- Institute, where appropriate, prophylactic therapy.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform and interpret appropriate investigations (including uterine artery Doppler).

Ability to formulate, implement and, where appropriate, modify a multidisciplinary management plan.

Ability to liaise, where appropriate, with haematologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Risks/benefits of prophylactic therapies
- Long-term health implications.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses, e.g. Maternal Medicine, Ultrasound. Attendance at:
    - thrombophilia clinics
    - serum screening laboratory.
- Personal study.

Evidence

- Log of experience and competence.
- Mini-CEX.
- Case-based discussions.

4.3 Fetal Growth Disorders

Objective

To be able to carry out appropriate assessment and management of the small-for-gestational age(SGA)/growth restricted fetus.

To be able to understand the management, complications and outcomes of growth-restricted neonates.

To be able to carry out appropriate assessment and management fetal macrosomia.

To understand the management, complications and outcome of neonates with growth disorders.

Knowledge Criteria

Fetal growth:
- Pattern, including organ-specific growth
- Regulation, including insulin, IGF system
- Causes, including fetal, placental and maternal factors.

Definitions:
- SGA/fetal growth restriction (FGR)
- Large-for-gestational age (LGA)/macrosomia.

Screening and diagnosis:
- Previous history
- Clinical examination, including symphysis fundal distance
- Ultrasound morphometry: basic and derived measurements, including estimated fetal weight
- Customised growth charts.

Tests of fetal wellbeing:
- Technique, indications for and interpretation of:
    - Doppler (umbilical artery, middle cerebral artery, ductus venosus
    - Amniotic fluid volume
    - Cardiotocography (including computerised analysis)
    - Biophysical profile.

Management:
- Strategy for monitoring
- Timing/mode of delivery
- Management of FGR in previable/extremely preterm fetus and in multiple pregnancy.

Outcome:
- Neonatal complications of SGA/LGA infant
- Long-term health implications of fetal growth disorders.

Clinical Competency

Take an appropriate history and perform an examination to screen for fetal growth disorders, including use of customised growth chart.

Perform and interpret the following:
- Ultrasound morphometry
- Umbilical artery Doppler
- Middle cerebral artery Doppler
- Ductus venosus Doppler
- Biophysical profile (including amniotic fluid volume, CTG).

Manage a case of SGA /FGR:
- Arrange appropriate investigations to identify cause
- Institute appropriate monitoring
- Plan time and mode of delivery, including termination of pregnancy, where appropriate.

Manage a case of LGA/macrosomia:
- Arrange appropriate investigations to identify cause
- Plan time/mode of delivery.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess fetal size.

Ability to perform and interpret ultrasound in fetus with suspected growth disorder.

Ability to formulate, implement and, where appropriate, modify a management plan and to liaise, where appropriate, with neonatologists.

Ability to counsel women and their partners about:
- Fetal and neonatal risks, including consideration, where appropriate, of termination of pregnancy
- Long-term health implications for infant
- Recurrence risks and management plan for future pregnancy.

Training support

- Observation of and discussion with senior medical staff
- Attachments in neonatology.
- Attendance at paediatric follow-up clinics, including neurodevelopment.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- OSATS (Arterial and Venous Dopplers in Fetal Growth Restriction)

4.4 Antepartum Haemorrhage

Objective

To be able to carry out appropriate assessment and management of women at risk of and presenting with antepartum haemorrhage (APH).

Knowledge Criteria

Pathophysiology:
- Placental abruption
- Placenta praevia
- Other causes, including vasa praevia
- Morbidly adherent placenta.

Epidemiology:
- Incidence
- Risk factors.

Screening and diagnosis:
- Risk factors, including previous caesarean section
- Ultrasound determination of placental site, including transvaginal ultrasound

Management:
- Clinical and laboratory assessment of:
    - haemorrhage
    - coagulation Assessment of fetal wellbeing (see 4.3)
    - Strategy for monitoring
    - Timing and mode of delivery
    - Appropriate use of blood and blood products (see 5.7).

Clinical Competency

Take an appropriate history from a woman with APH.

Perform an examination to assess the cause and consequences of APH.

Perform an ultrasound examination to assess:
- Placental site
- Morphology, including retroplacental haemorrhage and abnormal implantation.

Manage a case of APH, including;
- Arrange and interpret appropriate laboratory investigations
- Plan mode and timing of delivery
- Appropriate use of blood and blood products

Manage a case of suspected morbidly adherent placenta:
- Arrange appropriate investigations
- Plan caesarean section (see 5.7).

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess APH.

Ability to perform and interpret appropriate investigations to assess cause and consequences of APH.

Ability to formulate, implement and, where appropriate, modify a management plan and to liaise with anaesthetists, haematologists and radiologists, where appropriate.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Recurrence risks.

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachment in:
    - haematology
    - anaesthesia/ITU.
- Personal study.

Evidence
- Log of experience and competence
- Mini-CEX
- OSAT (Caesarean Section for placenta praevia)

4.5 Preterm delivery

Objective

To be able to carry out appropriate assessment and management of women with previous preterm birth and preterm prelabour rupture of membranes (PPROM).

To be able to carry out appropriate assessment and management of women with preterm labour/PPROM.

To understand the management, complications and outcome of the preterm neonate.

Knowledge Criteria

Pathophysiology and epidemiology:
- Preterm labour
- PPROM, including acute chorioamnionitis (see 6.16)
- Maternal and fetal conditions leading to elective preterm delivery
- Epidemiology of preterm labour/PPROM.

Screening and diagnosis:
- Risk factors
- Clinical examination
- Fetal fibronectin
- Cervical length (see 4.1)
- Vaginal infection, including bacterial vaginosis (see 6.14)
- C-reactive protein.

Management:
- In-utero transfer (principles and process)
- Tocolysis, corticosteroid and antibiotic administration
- Mode of delivery
- Strategy for monitoring in PPROM, including laboratory investigations, ultrasound
- Acute chorioamnionitis (see 6.16).

Pharmacology, including adverse effects:
- Corticosteroids (for lung maturity)
- Sympathomimetics, nifedipine, atosiban, indomethacin
- Progesterone
- Erythromycin (see also 6.16).

Outcome:
- Neonatal complications of preterm birth, including. jaundice, respiratory distress syndrome, retinopathy of prematurity, intraventricular haemorrhage, persistent fetal circulation)
- Long-term health implications of preterm birth (including chronic lung disease, neurodevelopmental delay, cerebral palsy)

Clinical Competency

Take an appropriate history from a woman at risk of, or presenting with, preterm labour/PPROM.

Manage a case of prior preterm birth/PPROM.
- Arrange and interpret appropriate investigations.

Manage a case of PPROM:
- Confirm diagnosis
- Arrange and interpret investigations and fetal monitoring
- Institute and modify antibiotic therapy.

Manage a case of preterm labour:
- Assess likelihood of preterm birth, including where appropriate measurement of cervical length and fetal fibronectin
- Arrange and interpret appropriate investigations and fetal monitoring
- Institute corticosteroid with or without tocolysis
- Arrange in-utero transfer
- Plan delivery.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform and interpret appropriate investigations, formulate, implement and, where appropriate, modify a management plan.

Ability to manage corticosteroid, tocolytic and other therapy, to arrange in-utero transfer and to liaise with neonatologists.

Ability to counsel women and their partners about:
- Maternal risks, including chorioamnionitis
- Fetal and neonatal risks, including risks of pulmonary hypoplasia and consideration, where appropriate, of termination of pregnancy
- Adverse effects of therapy
- Long-term health implications for infant
- Recurrence risks and management plan for future pregnancy.

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachment in neonatology.
- Attendance at paediatric follow-up clinics, including neurodevelopment.
- Personal study.

Personal Study Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.

4.6 Multiple pregnancy

Objective

To be able to carry out appropriate assessment and management of women with a twin pregnancy.

To be able to carry out appropriate assessment and management of a woman with a higher-order multiple pregnancy.

Knowledge Criteria

Embryology and epidemiology:

- Mono-and dizygous twinning
- Placentation: chorionicity and amnionicity
- Incidence of multiple pregnancy.

Maternal adaptation and antenatal care:

- Blood and cardiovascular system
- Other organ systems
- Organisation of antenatal care.

Screening and diagnosis:

- Ultrasound determination of zygosity/chorionicity (see 3.7)
- Aneuploidy (see 2.2)
- Structural anomaly (see 3.7)
- Morphometry, including criteria for discordancy.

Management and outcome:

- Preterm delivery (see 4.5)
- Discordant fetal anomaly (see 3.7)
- Discordant growth/FGR (see 4.3)
- Single fetal death
- Complications of monochorionic twinning (see 3.7)
- Higher-order multiple pregnancy (including fetal reduction).

Clinical Competency

Perform and interpret ultrasound screening and diagnosis in multiple pregnancy;
- Chorionicity and amnionicity
- Aneuploidy, including nuchal translucency

Manage a case of twin pregnancy complicated by:
- Discordant fetal anomaly (see 3.7)
- Fetal growth restriction/discordancy (see 4.3)
- Single fetal death
- Monoamniotic twinning
- Including:
    - arrange appropriate investigations
    - institute appropriate monitoring
    - plan time and mode of delivery.

Manage a higher-order multiple pregnancy including:
- Arrange appropriate investigations
- Perform fetal reduction or refer, where appropriate, for same

Professional Skills and Attitudes

Ability to perform and interpret appropriate investigations.

Ability to formulate, implement and, where appropriate, modify a management plan in monochorionic and dichorionic twin pregnancy.

Ability to liaise, where appropriate, with colleagues in fetal medicine and neonatology.

Ability to counsel women with multiple pregnancy and their partners about:
- Maternal and fetal risks in both monochorionic and dichorionic twins
- Prenatal diagnosis
- Selective feticide and fetal reduction
- Maternal and fetal risks of interventions in monochorionic twins
- Fetal and neonatal risks of preterm birth
- Fetal death, including empathy in bereavement support, consent for postmortem.

Training support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachment in neonatology.
- Attendance at:
    - multiple pregnancy clinic
    - fetal medicine unit (to witness interventions in monochorionic twins).
- Personal study.

Personal Study Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.

4.7 Malpresentation

Objective

To be able to carry out appropriate assessment and management of women with a breech presentation.

To be able to carry out appropriate assessment and management of a woman with an unstable lie.

Knowledge Criteria

Epidemiology and aetiology:
- Incidence
- Likelihood of spontaneous version
- Risk factors.

Screening and diagnosis:
- Clinical examination
- Ultrasound, including diagnosis of associated anomalies.

Management and outcome:
- External cephalic version, including Indications, technique, complications (see 4.5 re: tocolysis)
- Management options in breech presentation, including Induction of labour/caesarean section/attempted vaginal breech delivery (see 5.4)
- Management options in unstable lie (including Induction of labour/caesarean section
- Fetal/neonatal risks.

Clinical Competency

Take an appropriate obstetric history.

Perform an examination to determine fetal lie.

Manage a case of breech presentation including:
- Ultrasound diagnosis, including exclusion of fetal, placental and extra-uterine anomalies
- Appropriate selection and counselling of cases for external cephalic version (ECV)
- Perform ECV.

Manage a case of unstable lie including;
- Ultrasound diagnosis, including exclusion of fetal, placental and extrauterine anomalies

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess fetal lie/presentation.

Ability to perform and interpret ultrasound in fetus with suspected breech presentation/unstable lie.

Ability to formulate, implement and where appropriate modify a management plan, including timing and mode of delivery and to perform ECV.

Ability to counsel women and their partners about: Risks and benefits of ECV Management options Mode of delivery.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- OSATS (ECV)

4.8 Red Cell Alloimmunisation

Objective

To understand the principles and practical aspects of screening for and prevention of red cell alloimmunisation.

To be able to carry out appropriate assessment and management of a woman with an unstable lie.

To understand the management, complications and outcome of a neonate with haemolytic disease of the newborn (HDN).

Knowledge Criteria

Blood group systems/pathophysiology:
- Rhesus, including gene structure and prediction of genotype
- Other red cell antigens causing HDN
- Fetal pathology in HDN (see also 3.8).

Epidemiology:
- Incidence (alloimmunisation and complications)
- Risk factors (sensitising events).

Laboratory methods:
- Antibody detection (antiglobulin tests)
- Kleihauer testing/flow cytometry for fetomaternal haemorrhage fetomaternal haemorrhage
- DNA analysis, including use of free fetal DNA in maternal plasma.

Prevention of fetomaternal haemorrhage.

Organisation and effectiveness of screening and prevention programmes.

Management:
- Screening and diagnosis fetal anaemia (including MCA Doppler)
- Fetal transfusion therapy Hydrops (see 3.8).

Outcome:
- Neonatal complications of HDN, including Hyperbilirubinaemia, anaemia
- Management of complications, including Exchange transfusion
- Long term implications of HDN.

Pharmacology:
- Anti-D immunoglobulin.

Clinical Competency

Take an appropriate obstetric history:
- Past obstetric history
- Timing and method of sensitisation.

Manage a case of red cell alloimmunisation:
- Institute appropriate maternal and fetal monitoring
- Assess risk of fetal anaemia, including perform and interpret MCA Doppler
- Perform fetal blood sampling and transfusion or refer, where appropriate, for same
- Plan mode and place and timing of delivery.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform and interpret appropriate investigations in fetus at risk of haemolytic anaemia, including MCA Doppler.

Ability to formulate, implement and, where appropriate, modify a management plan for a woman with red cell antibodies.

Ability to liaise with neonatologists and laboratory (haematology/blood transfusion).

Ability to counsel women and their partners about:
- Prevention of alloimmunisation
- Fetal and neonatal risks of red cell antibodies
- Fetal transfusion therapy
- Recurrence risks and management plan for future pregnancy.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments:
    - Neonatology
    - Haematology
    - Blood transfusion.
- Attendance at fetal medicine unit (to witness fetal blood sampling/transfusion).
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- OSATS (ECV)

4.9 Platelet Alloimmunisation

Objective

To be able to carry out appropriate assessment and management of a woman with an unstable lie.

To understand the management, complications and outcome of a neonate with alloimmune thrombocytopenia (AIT).

Knowledge Criteria

Platelet groups/pathophysiology:
- human platelet antigen system
- Fetal and neonatal pathology in AIT.

Epidemiology:
- Incidence (alloimmunisation and complications).

Laboratory methods:
- Antibody detection
- DNA analysis.

Management:
- Assessment of risk of fetal haemorrhage
- Diagnosis of fetal thrombocytopenia
- Therapy options (maternal immunoglobulin therapy/fetal transfusion therapy).

Outcome:
- Neonatal complications of AIT
- Management of AIT, including platelet transfusion
- Long-term implications of AIT.

Pharmacology:
- Intravenous immunoglobulin, including effectiveness and adverse effects.

Clinical Competency

Take an appropriate obstetric history:
- Past obstetric history.

Manage a case of platelet alloimmunisation:
- Institute appropriate maternal and fetal monitoring
- Assess risk of fetal thrombocytopenia
- Institute, where appropriate, maternal intravenous immunoglobulin therapy
- Perform fetal blood sampling and platelet transfusion or refer, where appropriate, for same
- Plan mode, place and timing of delivery.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform and interpret appropriate investigations in fetus at risk of thrombocytopenia.

Ability to formulate, implement and, where appropriate, modify a management plan for a woman with anti-platelet cell antibodies and to liaise with neonatologists and laboratory (haematology/blood transfusion),

Ability to counsel women and their partners about:
- Fetal and neonatal risks
- Maternal and fetal therapy
- Recurrence risks and management plan for future pregnancy.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments:
- Neonatology
- Haematology
- Blood transfusion.
- Attendance at fetal medicine unit (to witness fetal blood sampling/transfusion).
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- OSATS (ECV)

4.10 Gynaecological Problems in Pregnancy

Objective

To be able to carry out appropriate assessment and management of a woman with a pelvic tumour complicating pregnancy.

Knowledge Criteria

Pathology:
- Uterine fibroids
- Ovarian tumours (benign and malignant)
- Complications encountered during pregnancy (see 6.17).

Epidemiology:
- Incidence of pelvic tumours and complications
- Acute abdomen in pregnancy.

Diagnosis:
- Ultrasound diagnosis, including assessment of risk of malignancy
- Complications, including differential diagnosis of acute abdomen in pregnancy (see 6.17).

Management:
- Indications for surgical intervention
- Analgesia (see 5.10)
- Anaesthesia (see 5.10)
- Role of radiotherapy and chemotherapy in ovarian malignancies.

Clinical Competency

Take an appropriate obstetric and gynaecological history.

Manage a case of pelvic tumour in pregnancy:
- Perform ultrasound assessment of uterus and ovaries/pelvic mass
- Institute appropriate maternal and fetal monitoring
- Institute, where appropriate, maternal supportive therapy
- Perform, under supervision, surgical management of ovarian cyst
- Plan mode, place and timing of delivery.

Manage a case of acute abdomen in pregnancy:
- Arrange appropriate investigations to identify cause
- Refer, where appropriate, for further management.

Professional skills and attitudes

Ability to take an appropriate history and perform an examination in a woman with a pelvic mass or abdominal pain in pregnancy.

Ability to perform and interpret ultrasound in women with a pelvic tumour.

Ability to formulate, implement and, where appropriate, modify a management plan for a woman with a pelvic tumour in pregnancy.

Ability to liaise, where appropriate, with gynaecologists, gynaecological oncologists and general surgeons.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Management options
- Prognosis.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

Module 4. Antenatal Complications

■ = Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Miscarriage and fetal death										
Recurrent first-trimester miscarriage										
Intrauterine fetal death										
Trophoblastic disease										
Cervical weakness										
Poor and failed placentation										
Biochemical markers of poor placentation										
Previous history poor or failed placentation										
Fetal growth disorders										
Fetal growth restriction: Singleton > 26 weeks										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Fetal growth restriction: Singleton ≤ 26 weeks										
Macrosomia										
Antepartum haemorrhage										
Placental abruption										
Placenta praevia										
Preterm delivery										
Prior history of preterm birth/prelabour rupture of membranes (PROM)										
Preterm PROM < 24 weeks										
Preterm PROM ≥ 24 weeks										
Elective preterm delivery										
In-utero transfer										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Multiple pregnancy										
Screening for trisomy (using nuchal translucency)										
Monochorionic twin										
Monoamniotic twin										
Co-twin demise after 12 weeks of gestation										
Twin with growth discordance										
Malpresentation										
Breech at term										
Red Cell Alloimmunisation										
Red cell alloimmunisation: Anti-D,c										
Red cell alloimmunisation: Anti-Kell										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Red cell alloimmunisation: Others										
Platelet alloimmunisation										
Gynaecological problems in pregnancy										
Acute abdomen										
Ovarian mass										
Fibroid uterus										
Procedures										
Ultrasound screen for preterm birth (cervical length)										
Elective cervical cerclage										
Rescue cervical cerclage										
Uterine artery Doppler										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Umbilical artery Doppler										
Middle cerebral artery Doppler										
Ductus venosus Doppler										
Biophysical profile										
Ultrasound assessment placental site (transvaginal)										
Ultrasound assessment of chorionicity										
External cephalic version										
Ultrasound screen for fetal anaemia										
Fetal red cell intravascular transfusion										
Fetal platelet intravascular transfusion										
Ultrasound assessment of pelvic mass										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

Module 5 Intrapartum Complications

5.1 Labour Ward Management

Objective

To understand the organisation and management of the delivery suite.

To understand and apply the principles of risk management in the delivery suite.

Knowledge Criteria

Organisation and management of labour ward:
- Staffing structure
- Equipment
- Delivery suite forum
- Emergency skills and drills
- Guidelines
- Audit, including collection and analysis of delivery suite workload.

Risk management on the labour ward:
- Principles of risk management
- Critical incident reporting.

Clinical Competency

Coordinate the clinical running of the labour ward at a daily level including:
- Staff allocation
- Appropriate triaging of clinical cases.

Write an evidence-based guideline relevant to the labour ward.

Lead an emergency drill on the labour ward:
- Set up and running of drill
- Feedback to staff.

Investigate a critical incident:
- Review the case
- Take appropriate statements
- Perform root cause analysis
- Write a report.

Professional Skills and Attitudes

Ability to lead a multidisciplinary team effectively.

Ability to coordinate the delivery suite appropriately.

Ability to write an evidence-based guideline relevant to the delivery suite.

Ability to set up, run and feedback on an emergency drill and investigate a critical incident appropriately and make recommendations.

Ability communicate effectively with:
- Junior medical staff
- Senior medical staff
- Midwifery staff
- Patients and relatives
- Obstetric anaesthetists.
- Neonatologists.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses (e.g. Management of the Labour Ward, ALSO/PROMPT/MOET)
- Attendance at:
    - risk management forum
    - delivery suite forum.
- Personal study.

Evidence

- Log of experience and competence
- OSATS
- Case-based discussion.

5.2 Failure to Progress in Labour

Objective

To understand the physiology of normal labour and the factors that can adversely affect progress.

To be able to carry out appropriate assessment and management of women with failure to progress in first stage and second stage of labour.

Knowledge Criteria

Anatomy and physiology:
- Anatomy of pelvis and fetal skull
- Regulation of myometrial contractility
- Stages of labour.

Pathophysiology, including causes and consequences of poor progress in labour:
- Inefficient uterine action
- Malposition
- Relative and absolute cephalopelvic disproportion
- Fetal acid base status
- Postpartum uterine atony.

Management:
- Maternal support
- Amniotomy
- Mobilisation/position
- Analgesia (see 5.10)
- Oxytocin
- Manual rotation
- Instrumental vaginal delivery
- Caesarean section.

Pharmacology, including adverse effects:
- Oxytocin.

Clinical Competency

Take an appropriate history and perform an examination to assess progress in labour.

Manage a case of failure to progress in the first stage of labour:
- Perform examination to identify cause, e.g. Inefficient uterine activity, malposition, cephalopelvic disproportion (relative and absolute)
- Counsel regarding management
- Institute appropriate management, including delivery, where appropriate.

Manage a case of failure to progress in the second stage of labour:
- Perform examination to identify cause
- Counsel regarding management
- Institute appropriate management.

Perform:
- Manual rotation
- Ventouse (rotational and non-rotational)
- Forceps (outlet and mid-cavity)
- Caesarean section training support.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform and interpret abdominal/pelvic examination.

Ability to formulate, implement and, where appropriate, modify a management plan.

Ability to liaise, where appropriate, with anaesthetists and neonatologists.

Ability to counsel women and their partners about:
- Management
- Maternal and fetal risks.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses e.g. Management of the Labour Ward, ALSO//PROMPTMOET.
- Attachments in:
    - Obstetric anaesthesia
    - Neonatology.
- Royal College of Obstetricians and Gynaecologists. *Operative Vaginal Delivery*. Green-top Guideline No. 26.
- National Collaborating Centre for Women's and Children's Health. *Caesarean Section*. (Clinical Guideline).
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussion

5.3 Non-reassuring Fetal Status in Labour

Objective

To be able to carry out appropriate assessment and management of fetal acidaemia in labour.

To understand the management, complications and outcomes of hypoxic ischaemic encephalopathy.

Knowledge Criteria

Pathophysiology:
- Regulation of fetal heart rate
- Fetal acid base balance
- Hypoxic ischaemic encephalopathy (HIE).

Fetal monitoring in labour, including principles, interpretation and predictive value of fetal:
- Meconium
- Cardiotocography (CTG)
- ECG
- Pulse oximetry
- Ph, blood gases and lactate
- Oligohydramnios.

Management:
- Position/oxygen therapy
- Acute tocolysis
- Amnioinfusion
- Emergency operative delivery.

Pharmacology, including adverse effects:
- Terbutaline/ritodrine.

Outcome:
- Neonatal complications of HIE, including seizures, abnormal neurological function, organ failure
- Long-term health implications of HIE, including Cerebral palsy.

Clinical Competency

Take an appropriate history.

Manage a case of suspected and confirmed fetal acidaemia in labour:
- Arrange appropriate investigations to confirm fetal acidaemia
- Counsel regarding fetal/neonatal risks and management options
- Institute, where appropriate, in utero resuscitation/emergency delivery.

Perform:
- CTG interpretation
- Fetal blood sampling
- ECG waveform analysis
- Ultrasound assessment of amniotic fluid volume (see 4.3)
- Intrapartum amnioinfusion.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform and interpret investigations to assess fetal status in labour.

Ability to formulate, implement and, where appropriate, modify a management plan.

Ability to liaise, where appropriate, with anaesthetists and neonatologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Management options
- Long-term health implications for infant.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses, e.g. Management of the Labour Ward, ALSO/PROMPT/MOET.
- Attachments in:
- Obstetric anaesthesia
- Neonatology
- Attendance at neonatal follow-up clinics
- RCOG. *The Use of Electronic Fetal Monitoring*. National Evidence-based Guideline No. 8.
- National Collaborating Centre for Women's and Children's Health. *Caesarean Section*. (Clinical Guideline).
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.
- OSATS

5.4 Multiple pregnancy and malpresentation

Objective

To be able to carry out appropriate assessment and management of women with multiple pregnancy in labour.

To be able to carry appropriate assessment and management of women with breech and transverse lies diagnosed in labour.

Knowledge Criteria

Epidemiology and aetiology:
- Incidence
- Predisposing factors.

Intrapartum care in twins:
- Physiology of labour
- Fetal monitoring
- Inter-twin interval
- Effects of chorionicity.

Diagnosis and management:
- Clinical exam
- Ultrasound
- Risks and benefits of caesarean section in:
    - breech presentation
    - transverse/oblique lie
    - twin and higher order multiple pregnancy (see 4.6)
- Breech delivery:
    - manoeuvres (assisted breech delivery and breech extraction)
    - complications, including problems with after coming head
- Twin delivery:
    - external cephalic version (ECV) for second twin (see (4.7)
    - artificial rupture of membranes/oxytocin in second stage
    - operative delivery second twin.

Clinical Competency

Take an appropriate history.

Manage a case of twin pregnancy in labour:
- Arrange and interpret fetal monitoring
- Counsel regarding management
- Institute appropriate management.

Manage a case of breech presentation in labour:
- Arrange and interpret fetal monitoring
- Counsel regarding management, including risks and benefits of caesarean section
- Institute appropriate management.

Manage a case of transverse lie in labour:
- Counsel regarding management
- Institute appropriate management.

Perform:
- ECV in labour, including breech, transverse lie and second twin
- Vaginal breech delivery
- Breech extraction
- Internal podalic version.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform and interpret investigations to confirm fetal lie in labour.

Ability to formulate, implement and, where appropriate, modify a management plan.

Ability to perform vaginal breech delivery and twin delivery.

Ability to liaise, where appropriate, with anaesthetists and neonatologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Management options, including mode of delivery.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses e.g. Management of the Labour Ward; ALSO/ PROMPT/MOET.
- Attachments in:
    - obstetric anaesthesia
    - neonatology.
- RCOG. *Management of Breech Presentation*. Green-top Guideline No. 20
- Personal study

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.
- OSATS

5.5 Shoulder dystocia

Objective

To be able to carry out appropriate assessment and management of women with shoulder dystocia.

To understand the management, complications and outcomes of neonates with birth trauma.

Knowledge Criteria

Epidemiology and aetiology:
- Incidence
- Predisposing factors
- Risks of recurrence

Management:
- Clinical
- Fire drill procedures, e.g. HELPERR
- Advanced manoeuvres, including Indications, procedure and risks of:
    - Zavanelli manoeuvre
    - Symphysiotomy.

Outcome:
- Neonatal complications of birth trauma, including intraventricular haemorrhage, bone fractures, brachial plexus injury, hypoxic-ischaemic encephalopathy
- Management of complications
- Long-term outcome.

Clinical Competency

Take an appropriate history.

Manage a case of shoulder dystocia:
- Institute and document appropriate management
- Perform:
    - McRoberts' manoeuvres and suprapubic pressure
    - Internal rotation of shoulders
- Removal of posterior arm.

Manage a case of previous shoulder dystocia:
- Assess recurrence risk
- Arrange appropriate investigations
- Counsel regarding maternal and fetal risks
- Plan mode and timing of delivery.

Professional Skills and Attitudes

Ability to take an appropriate history

Ability to formulate, implement and document a management plan for shoulder dystocia.

Ability to perform manoeuvres to achieve delivery in shoulder dystocia.

Ability to liaise, where appropriate, with anaesthetists/neonatologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Long-term health implications of birth trauma
- Recurrence risks and management plan for future pregnancy.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses e.g. Management of the Labour Ward; ALSO/ PROMPT/MOET
- Attachments in:
    - obstetric anaesthesia
    - neonataology.
- Attendance at:
    - Neonatal follow-up clinics
    - Paediatric orthopaedic clinics.
- RCOG. *Shoulder Dystocia*. Green-top Guideline No. 42.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.
- OSATS

5.6 Genital Tract Trauma

Objective

To be able to carry out appropriate assessment and management of a woman with a third-or fourth-degree perineal tear.

To be able to carry out appropriate assessment and management of a woman with a uterine rupture.

Knowledge Criteria

Anatomy and physiology:
- Perineum and pelvic floor
- Anal sphincter function.

Epidemiology and aetiology:
- Incidence
- Predisposing factors.

Diagnosis and management:
- Clinical examination
- Ultrasound (endoanal)
- Surgical repair
- Anal sphincter
- Cervix/uterus
- Postpartum haemorrhage (see 5.7)

Outcome:
- Long-term health implications, including pain, incontinence
- Implications for future pregnancy.

Clinical Competency

Take an appropriate history

Manage a case of third-or fourth-degree perineal tear (see also 5.7):
- Assess type of tear
- Counsel regarding management
- Institute appropriate management, including Surgical repair
- Plan appropriate follow-up.

Manage a case of prior third-or fourth-degree perineal tear:
- Arrange and interpret appropriate investigations, including endoanal ultrasound
- Counsel regarding management options
- Plan mode of delivery.

Manage a case of uterine rupture (see also 5.7):
- Assess maternal and fetal condition
- Counsel regarding management
- Institute appropriate management, including emergency caesarean section, repair of uterus.

Perform:
- Repair of third-or fourth-degree perineal tear
- Repair of uterine rupture
- Hysterectomy (see 5.7).

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to:
- Diagnose presence and extent of genital tract trauma
- Formulate, implement and where appropriate, modify a management plan
- Perform appropriate surgical repair Liaise, where appropriate, with gynaecologists and surgeons
- Arrange appropriate follow up
- Counsel women and their partners about:
    - Maternal and fetal risks
    - Long-term health implications
    - Recurrence risks and management plan for future pregnancy.

Training Support

- Observation of and discussion with senior medical staff
- Appropriate postgraduate courses, e.g. Management of the Labour Ward; ALSO/ PROMPT/MOET
- Attendance at pelvic floor clinic
- RCOG. *The Management of Third-and Fourth-degree Perineal Tears*. Green-top Guideline No. 29.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.
- OSATS

5.7 Postpartum Haemorrhage and Other Third-stage Problems

Objective

To be able to carry out appropriate assessment and management of a woman with a massive postpartum haemorrhage (PPH).

To be able to recognise and manage complications of the third stage of labour.

Knowledge Criteria

Anatomy:
- Pelvic anatomy and blood supply.
- Epidemiology and aetiology of PPH
    - Incidence
    - Predisposing factors, including adherent placenta, uterine inversion.

Laboratory methods:
- Diagnosis and monitoring of disseminated intravascular coagulation (see 1.11)
- Crossmatching

Management of massive PPH:
- Maternal resuscitation, including use of:
    - crystalloid/colloid iv fluids
    - blood and blood products
- Medical management (see below)
- Surgical management
- Intrauterine balloon
- Brace suture
- Internal iliac ligation
- Hysterectomy
- Interventional radiology (vascular balloons and coils).

Pharmacology, including adverse effects of drugs used in PPH:
- Oxytocin, ergometrine
- 15 methyl prostaglandin F2α
- Misoprostol
- Recombinant factor VIIa.

Clinical Competency

Manage a case of massive PPH:

- Assess blood loss and consequences
- Undertake resuscitation (see 5.10)
- Ascertain cause of haemorrhage
- Arrange and interpret appropriate investigations
- Counsel regarding management options
- Institute and modify appropriate medical and/or surgical management for:
    - uterine atony
    - inverted uterus
    - adherent placenta

Perform:

- Manual removal of placenta
- Correction of uterine inversion (manual and hydrostatic replacement)
- Insertion of uterine balloon catheter
- Insertion of brace suture
- Internal iliac ligation/hysterectomy (under supervision) or refer, where appropriate, for same.

Professional Skills and Attitudes

Ability to:

- Rapidly assess extent of haemorrhage and institute appropriate resuscitative measures
- Formulate, implement and, where appropriate, modify a management plan
- Perform appropriate surgical intervention
- Liaise, where appropriate, with gynaecologists, haematologists and radiologists.
- Counsel women and their partners about:
    - Management options and maternal risks
    - Recurrence risks and management plan for future pregnancy debrief family and staff.

Training Support

- Observation of and discussion with senior medical staff
- Appropriate postgraduate courses, e.g. Management of the Labour Ward; ALSO/ PROMPT/MOET
- Attachment in:
    - Anaesthesia
    - Intensive Care
    - Haematology
    - Blood transfusion.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.
- OSATS
- Fire drill

5.8 Caesarean Section

Objective

To be able to carry out appropriate assessment and management of a woman with a previous caesarean section.

To plan and perform caesarean section in special circumstances.

Knowledge Criteria

Epidemiology:
- Risks of caesarean section:
    - visceral damage
    - infection
    - venous thrombosis
- Risks associated with previous caesarean section:
    - uterine rupture
    - abnormal placentation
- Vaginal birth after caesarean section (VBAC):
    - success rates
    - complication rates.

Diagnosis:
- Ultrasound determination of placental site (see 4.4).

Management:
- CS
- Surgical technique, including abdominal wall and uterine entry/closure
- Prevention of complications, including thrombosis, infection
- Impact of following conditions:
    - placenta praevia
    - morbidly adherent placenta
    - fetal anomaly
    - extreme prematurity
    - prior abdominal surgery.
- VBAC, including:
    - use of oxytocics
    - role of induction of labour
    - fetal monitoring (see 5.3).

Clinical Competency

Take an appropriate history.

Manage a case of previous caesarean section:
- Arrange appropriate investigations
- Counsel regarding management options and fetal and maternal risks
- Plan mode and timing of delivery.

Perform caesarean section using the appropriate surgical technique in the following circumstances:
- Major placental praevia
- Morbidly adherent placenta (see 4.4)
- Fetal anomaly likely to cause dystocia
- Extreme prematurity
- Extensive prior abdominal surgery.

Manage complications of caesarean section, under supervision where appropriate:
- Extension of uterine incision
- Haemorrhage (see 5.7)
- Visceral damage
- Wound dehiscence
- Infection
- Venous thrombosis.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to counsel women and their partners about the risks of emergency and elective caesarean section.

Ability to perform and interpret appropriate investigations in women undergoing caesarean section.

Ability to formulate, implement and, where appropriate, modify a management plan for a woman undergoing caesarean section.

Ability to perform caesarean section using the appropriate surgical technique.

Ability to liaise with anaesthetists, haematologists, neonatologists and radiologists, where appropriate.

Ability to counsel women with a prior caesarean section about options (caesarean section vs. VBAC).

Training Support

- Observation of and discussion with senior medical staff
- Appropriate postgraduate courses, e.g. Management of the Labour Ward; ALSO/ PROMPT/MOET
- Attachment in anaesthesia
- NCCWCH. *Caesarean Section*. Clinical Guideline.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions
- OSATS

5.9 Anaesthesia and Analgesia

Objective

To understand the methods, indications for and complications of anaesthesia.

To understand the methods, indications for and complications of systemic analgesia and sedation.

Knowledge Criteria

Anatomy and physiology:
- Spinal cord
- Innervation of pelvic organs
- Pain.

Management:
- Pain management during labour:
    - nonpharmacological techniques
    - inhalational analgesia
    - systemic analgesia (opioids)
- Regional analgesia and anaesthesia, including Techniques and complications:
    - pudendal
    - epidural
    - spinal
- General anaesthesia, including techniques and complications
- Analgesia and anaesthesia in women at high risk of complications, including hypertensive disease, cardiac disease and fetal growth restriction.

Pharmacology:
- Opioid analgesia
- Local anaesthesia
- General anaesthesia
- Phenylephrine/ephedrine.

Outcome:
- Effects of neuraxial anaesthesia on:
    - labour outcome
    - temperature
    - fetal wellbeing.

Clinical Competency

Counsel women about the different forms of analgesia and anaesthesia, including efficacy and risks.

Perform pudendal nerve block.

Professional Skills and Attitudes

Ability to counsel women and their partners about efficacy and risks of different methods of analgesia for labour.

Ability to counsel women and their partners about efficacy and risks of different methods of anaesthesia for assisted vaginal delivery and caesarean section.

Ability to formulate, implement and, where appropriate, modify a analgesia/anaesthesia management plan.

Ability to liaise with anaesthetists.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses, e.g. Management of the Labour Ward; ALSO/ PROMPT/MOET.
- Attachment in anaesthesia.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions
- OSATS

5.10 Maternal Resuscitation

Objective

To be able carry out appropriate assessment and management of maternal collapse, including cardiac arrest.

To be able to carry out appropriate assessment and management of the depressed neonate.

Knowledge Criteria

Pathophysiology:
- Hypovolaemia
- Pulmonary embolism (see 1.12)
- Amniotic fluid embolism
- Primary cardiac event (see 1.3)
- Trauma
- Cerebrovascular event
- Electrocution
- Neonatal depression.

Epidemiology:
- Maternal collapse (causes and risk factors)
- Neonatal depression.

Management:
- Maternal resuscitation:
    - respiratory management, including basic airway management, indications for intubation, ventilation
    - circulatory management, including cardiac massage, defibrillation
    - fluid management (see 5.7)
- Indications for perimortem caesarean section
- Principles neonatal resuscitation:
    - respiratory depression/apnoea
    - bradycardia/cardiac arrest
    - meconium aspiration.

Pharmacology:
- Oxygen
- Adrenaline (epinephrine)
- Sodium bicarbonate
- Atropine.

Clinical Competency

Manage a case of maternal collapse:

- Ascertain cause of collapse
- Undertake resuscitation (as part of a multidisciplinary team)
- Institute and modify appropriate medical management for:
    - pulmonary embolism
    - amniotic fluid embolism
    - cardiac arrhythmia
- Arrange appropriate investigations
- Perform (under supervision) perimortem caesarean section or refer, where appropriate, for same

Perform neonatal resuscitation:

- Mask ventilation
- Endotracheal intubation
- Cardiac massage.

Professional Skills and Attitudes

Ability to rapidly assess maternal collapse and institute resuscitative measures.

Ability to work effectively as part of a multidisciplinary team.

Ability to formulate, implement and where appropriate modify a management plan in maternal collapse/cardiac arrest.

Ability to liaise with physicians, anaesthetists and neonatologists.

Ability to debrief family and staff.

Ability to perform effective neonatal resuscitation.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses, e.g. Management of the Labour Ward; ALSO/ PROMPT/MOET.
- Attachment in:
    - anaesthesia
    - neonatology.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions
- Fire drill

5.11 Medical Disorders on the Labour Ward

Objective

To be able carry out appropriate intrapartum and immediate postpartum assessment and management of women with medical disorders.

Knowledge Criteria

Pathophysiology, including the effect of labour and delivery on the following diseases:

- Diabetes
- Cardiac and respiratory abnormalities
- Haemoglobinopathies
- Thrombotic and haemostatic abnormalities
- Epilepsy
- Severe pre-eclampsia/eclampsia
- Renal disease
- Hypertension
- HIV
- Sepsis.

Management:

- Maternal monitoring:
    - blood glucose
    - respiratory function, including respiratory rate, SaO_2, blood gases
    - cardiovascular function, including blood pressure, heart rate, cardiac output
    - renal function, including urine output, creatinine Analgesia and anaesthesia (see 5.9).

Pharmacology:

- Effects of drugs used to treat above conditions on course and outcome of labour
- Effects of drugs used in management of labour (e.g. oxytocin, Syntometrine) on above conditions
- Effects of analgesics and anaesthetics on the above conditions.

Clinical Competency

Take and appropriate history and perform an examination to assess medical disorder.

Manage a woman with a medical disorder in labour, including:
- Monitor blood glucose and maintain euglycaemia (see 1.7) using intravenous glucose and insulin
- Monitor cardiorespiratory function and maintain oxygenation and cardiac output (see 5.11)
- Monitor abnormal blood clotting and respond, including therapeutic intervention
- Monitor blood pressure and, where appropriate, treat hypertension (see 1.1)
- Monitor renal function and respond where appropriate by adjusting fluid balance or with drugs
- Use anticonvulsants effectively.

Manage a case of sickle cell disease during labour (see 1.11):
- Counsel regarding management and risks
- Optimise hydration, oxygenation, analgesia
- Manage sickle crisis, including fluids, oxygen, antibiotics and analgesics.

Manage a case of HIV in labour (see 6.2):
- Plan mode of deliver
- Institute intravenous zidovudine therapy.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an appropriate examination in a woman with a medical disorder.

Ability to formulate, implement and, where appropriate, modify a medical management plan for labour and delivery.

Ability to liaise with physicians, anaesthetists and neonatologists.

Ability to counsel women and their partners about management options in labour risks of medical therapies.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses, e.g. Management of the Labour Ward; ALSO/ PROMPT/MOET.
- Attachment in:
    - Anaesthesia
    - Neonatology.
- Attendance at medical clinics.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

5.12 Intensive Care

Objective

To understand the organisation and role of high dependency and intensive care.

To understand the indications for and methods of invasive monitoring.

To understand the management of organ failure.

Knowledge Criteria

Organisation:
- Structure and organisation of:
  - High-dependency care
  - intensive care
- Role of outreach teams
- Indications for high-dependency and intensive care in obstetrics.

Management:
- Methods of invasive monitoring:
  - oxygenation/acid base
  - arterial pressure
  - cardiac output, preload and contractility
- Organ failure, including principles and techniques of supportive therapy:
  - respiratory failure
  - cardiac failure
  - renal failure
  - hepatic coagulation
  - coagulation failure.

Clinical Competency

Take and appropriate history and perform an examination to assess a critically ill woman.

Manage a woman with organ failure:
- Undertake resuscitation (see 5.10)
- Arrange and interpret appropriate investigations to confirm diagnosis/cause and monitor organ function
- Arrange transfer to high-dependency/intensive care unit and, where appropriate, arrange appropriate investigations.

Perform:
- Insertion of central venous pressure line
- Endotracheal intubation
- Insertion arterial line/PA catheter (under supervision) or refer, where appropriate, for same.

Professional skills and attitudes

Ability to take an appropriate history and conduct an appropriate examination in a critically ill woman.

Ability to perform and interpret investigations to diagnose and monitor organ failure.

Ability to formulate, implement and, where appropriate, modify a management plan, including transfer to high-dependency/intensive care unit.

Ability to liaise with intensivists, physicians, anaesthetists and neonatologists.

Ability to counsel women and their partners about:
- Management options, including therapeutic interventions
- Maternal and fetal risks.

Ability to debrief family and staff.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses, e.g. Management of the Labour Ward; ALSO/ PROMPT/MOET.
- Attachment in:
    - anaesthesia
    - intensive care.
- Attendance at medical clinics.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

Module 5. Intrapartum Complications

■ = Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Failure to progress in labour										
First stage of labour										
Second stage of labour										
Non-reassuring fetal status in Labour										
Suspected fetal acidaemia										
Confirmed fetal acidaemia										
Multiple pregnancy and malpresentation										
Labour and delivery in multiple pregnancy										
Breech labour and delivery										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Shoulder dystocia										
Prior history of shoulder dystocia										
Shoulder dystocia										
Genital tract trauma										
Prior history of third-/fourth-degree perineal tear										
Third-/fourth-degree perineal tear										
Uterine scar rupture										
Postpartum haemorrhage and other third stage problems										
Massive postpartum haemorrhage without laparotomy										
Massive postpartum haemorrhage with laparotomy										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Disseminated intravascular coagulation										
Caesarean section										
Prior history of caesarean section										
Complex caesarean section (assessment/counselling/performance)										
Anaesthesia and analgesia										
Assessment and counselling of high-risk case										
Maternal Resuscitation										
Medical management of massive haemorrhage										
Surgical management of massive haemorrhage										
Amniotic fluid embolism										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Massive pulmonary embolism										
Cerebrovascular event										
Assessment and transfer of a critically ill woman to intensive care										
Procedures										
Assisted vaginal delivery: Manual rotation										
Assisted vaginal delivery: Rotational ventouse										
Cardiotocograph Interpretation										
Fetal blood sampling										
Improving fetal acidaemia										
Physiological methods										
Pharmacological methods										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Intrapartum amnioinfusion										
Breech delivery										
Vaginal breech delivery										
Breech extraction										
Emergencies										
Repair of uterine rupture										
Peripartum hysterectomy										
Correction of uterine inversion										
Insertion of uterine balloon										
Insertion of brace suture										
Internal iliac artery ligation										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Shoulder dystocia										
McRoberts' manoeuvre/suprapubic pressure										
Internal rotation of shoulders										
Removal posterior arm										
Repair of perineal tear										
Third degree tear										
Fourth degree tear										
Caesarean section										
Major placental praevia										
Placenta accreta/percreta										
Fetal anomaly (likely dystocia)										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Classical incision for extensive abdominal surgery										
Classical incision for large fibroids										
Classical incision: Other indications										
Resuscitation										
Maternal resuscitation										
Neonatal resuscitation										
Medical disorders on the Labour Ward										
Type 1 diabetes mellitus										
Seizures										
Clotting disorder										
Sickle cell disease										
HIV infection										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

MODULE 6 INFECTIOUS DISEASES

6.1 Human Immunodeficiency Virus (HIV)

Objective

To be able to carry out appropriate assessment and management of women with HIV infection in pregnancy.

Knowledge Criteria

Virology and epidemiology:
- HIV1 and 2
- Natural history and viral dynamics
- Pathophysiology of HIV infection/AIDS
- Mode and risk of transmission
- Epidemiology of infection in pregnancy.

Screening and diagnosis:
- Rationale and organisation of screening programme
- Laboratory tests
- Screening, e.g. enzyme immunoassay
- Diagnostic, e.g. Western blot
- Referral pathways.

Management:
- Screening for coincident infection (genital infection, hepatitis)
- Laboratory monitoring: viral load/CD4 T-lymphocyte count
- Strategies to reduce mother–child transmission, including anti-retroviral therapy, mode of delivery, feeding
- Conduct of labour/caesarean section
- Advanced HIV
- Antenatal complications, including preterm birth
- Neonatal management and testing.

Pharmacology, including adverse effects:
- Zidovudine
- HAART.

Outcome:
- Neonatal infection (diagnosis and complications)
- Long-term outcome: chronic HIV infection.

Clinical Competency

Take an appropriate history.

Counsel women about screening for HIV in pregnancy.

Manage a case of HIV infection in pregnancy:
- Arrange and interpret appropriate investigations, including viral load/CD4
- Counsel regarding maternal and fetal risks, strategies to reduce mother–child transmission and management options
- Institute, and where appropriate, modify antiretroviral therapy (in collaboration with HIV expert)
- Plan mode of delivery
- Manage labour and delivery/caesarean section.

Perform caesarean section in a woman with HIV infection.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to counsel women:
- Before screening test
- After positive result.

Ability to formulate, implement and, where appropriate, modify a management plan in HIV-positive women.

Ability to liaise with HIV expert, multidisciplinary team, neonatologists and GP.

Ability to counsel women and their partners about:
- Management options
- Risks and benefits of anti-retroviral therapy
- Long-term outcome for mother and infant.

Ability to respect patient confidentiality.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses, e.g. Maternal medicine.
- Attachments in:
    - HIV clinic/multidisciplinary team
    - Neonatology.
- RCOG. *Management of HIV in Pregnancy*. Green-top Guideline No. 39.
- NCCWCH. *Antenatal Care*. Clinical Guideline.
- Personal study

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.2 Hepatitis

Objective

To be able to carry out appropriate assessment and management of women with hepatitis in pregnancy.

Knowledge Criteria

Virology and epidemiology:
- Hepatitis A,B,C (HAV, HBV, HCV)
- Natural history and viral dynamics
- Pathophysiology of acute and chronic hepatitis
- Mode and risk of transmission
- Epidemiology of infection in pregnancy

Screening and diagnosis:
- Differential diagnosis of jaundice/abnormal liver function tests
- Rationale and organisation of hepatitis B (HbsAG) screening programme
- Laboratory tests:
    - serology, e.g. enzyme immunoassay
    - diagnostic, e.g. Western blot, polymerase chain reaction
- Risk groups for HCV
- Neonatal testing.

Management:
- Supportive care
- Screening for coincident infection (HBC, HCV).

Prevention:
- HAV/HBV vaccination in pregnancy
- Prevention perinatal infection:
    - HA immunoglobulin
    - HBIG and vaccination
- Mode of delivery
- Breastfeeding.

Outcome:
- HBV/HCV-related disease (cirrhosis, hepatocellular carcinoma).

Pharmacology:
- HAV vaccine, HAIG
- HBV vaccine, HBIG.

Clinical Competency

Take an appropriate history.

Perform an examination to assess jaundice.

Counsel women about screening for HBV and HCV in pregnancy.

Manage a case of HAV infection in pregnancy:
- Arrange and interpret appropriate investigations
- Institute appropriate supportive care.

Manage a case of HBV infection in pregnancy:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks, strategies to reduce mother–child transmission and management options
- Manage labour and delivery/caesarean section.

Manage a case of HCV infection in pregnancy:
- Arrange and interpret appropriate investigations in high-risk cases
- Counsel regarding maternal and fetal risks, strategies to reduce mother–child transmission and management options
- Manage labour and delivery/caesarean section.

Counsel regarding HAV and HBV vaccination in pregnancy.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with jaundice.

Ability to counsel women:
- Before HBV/HCV screening test
- After positive result
- About HAV/HBV vaccination.

Ability to formulate, implement and, where appropriate, modify a management plan in acute HAV infection.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with HBV/HCV infection.

Ability to liaise with hepatologists, virologists, neonatologists and GP.

Ability to counsel HBV/HCV-infected women and their partners about:
- Management options
- Risks of perinatal transmission and methods of prevention
- Long-term outcome for mother and infant.

Ability to respect patient confidentiality.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in virology and neonatology.
- Attendance at hepatology clinic.
- NCCWCH. *Antenatal Care*. Clinical Guideline.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.3 Cytomegalovirus

Objective

To be able to carry out appropriate assessment and management of women with cytomegalovirus (CMV) infection in pregnancy.

Knowledge Criteria

Virology and epidemiology:
- Cytomegalovirus
- Pathophysiology of primary infection (in adult and fetus)
- Mode and risk of transmission
- Epidemiology of infection in pregnancy (high-risk groups).

Screening and diagnosis:
- Laboratory tests:
  - maternal serology, immunofluorescent tests, enzyme immunoassay
  - fetal diagnosis, e.g. amniotic fluid polymerase chain reaction/culture, viral DNA, serology
- Ultrasound features of fetal infection
- Primary vs. recurrent infection.

Management:
- Supportive care
- Maternal and fetal risks
- CMV infection in immunocompromised women
- Fetal therapy (ganciclovir, CMV hyperimmune globulin)
- Termination of pregnancy.

Outcome:
- Sequelae of congenital CMV infection.

Clinical Competency

Take an appropriate history.

Manage a case of CMV infection in pregnancy:
- Arrange and interpret appropriate maternal and fetal investigations
- Perform an ultrasound scan to detect features of fetal CMV infection
- Institute appropriate supportive care and monitoring
- Counsel regarding maternal and fetal risks
- Institute, where appropriate, fetal therapy
- Arrange, where appropriate, termination of pregnancy.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to perform and interpret appropriate investigations, including ultrasound.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with CMV infection in pregnancy.

Ability to liaise with virologists and neonatologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Management options, including fetal diagnostic testing
- Risks of perinatal transmission and methods of prevention
- Long-term outcome for infants with congenital CMV infection.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - virology
    - neonatology.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.

6.4 Herpes Simplex Virus

Objective

To be able to carry out appropriate assessment and management of women with herpes simplex virus (HSV) infection in pregnancy.

Knowledge Criteria

Virology and epidemiology:
- HSV 1 and 2
- Pathophysiology of primary and recurrent infection and congenital herpes
- Mode and risk of transmission
- Epidemiology of infection in pregnancy.

Management:
- Differential diagnosis oral/genital ulcers
- Screening: HSV serology
- Diagnosis: viral culture
- Maternal and fetal risks
- Acyclovir for active disease/prophylaxis
- Prevention of perinatal infection:
    - role of caesarean section
    - avoidance scalp electrodes.

Outcome:
- Sequelae of congenital HSV infection.

Pharmacology, including adverse effects:
- Acyclovir (oral and intravenous).

Clinical Competency

Take an appropriate history.

Perform an examination for active HSV lesions.

Manage a case of HSV infection in pregnancy
- Arrange and interpret appropriate investigations
- Institute symptomatic treatment and acyclovir for active disease
- Counsel regarding maternal and fetal risks
- Institute, where appropriate, prophylactic acyclovir
- Plan time and mode of delivery.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to screen for HSV infection in pregnancy.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with HSV infection in pregnancy.

Ability to liaise with virologists, neonatologists and GP.

Ability to counsel women and their partners about:
- Methods of reducing sexual transmission
- Risks of perinatal transmission and methods of prevention
- Maternal and fetal risks
- Safety of acyclovir in pregnancy
- Management options.

Ability to respect patient confidentiality.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - virology
    - neonatology/
- Personal study.
- RCOG. *Management of Genital Herpes in Pregnancy.* Green-top Guideline No. 30.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.

6.5 Parvovirus

Objective

To be able to carry out appropriate assessment and management of women with parvovirus infection in pregnancy.

Knowledge Criteria

Virology and epidemiology:
- Parvovirus B19
- Pathophysiology of maternal and fetal infection, including anaemia/hydrops
- Mode and risk of transmission
- Epidemiology of infection in pregnancy.

Screening and diagnosis:
- Differential diagnosis fever, rash, arthropathy in pregnancy
- Laboratory tests:
    - maternal serology – ELISA
    - fetal diagnosis, e.g. amniotic fluid polymerase chain reaction/culture, viral DNA, serology
- Ultrasound features of fetal infection.

Management:
- Maternal and fetal risks
- Ultrasound monitoring in maternal infection
- Screening and diagnosis fetal anaemia, including MCA Doppler (see 4.8)
- Differential diagnosis of fetal hydrops (see 3.7)
- Fetal transfusion therapy (see 4.8).

Outcome:
- Sequelae of congenital parvovirus HSV.

Clinical Competency

Take an appropriate history.

Manage a case of parvovirus infection in pregnancy:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks
- Institute appropriate fetal monitoring, including Perform and interpret MCA Doppler
- Perform fetal blood sampling and transfusion or refer, where appropriate, for same (see 4.8)
- Plan mode, place and timing of delivery,

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to diagnose parvovirus infection.

Ability to perform and interpret appropriate investigations, including ultrasound.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with parvovirus infection.

Ability to liaise with virologists, neonatologists and haematology/blood transfusion service.

Ability to counsel women and their partners about:
- Risks of perinatal transmission
- Maternal and fetal risks
- Management options, including fetal transfusion.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - virology
    - neonatology.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.

6.6 Rubella

Objective

To be able to carry out appropriate assessment and management of women with rubella infection in pregnancy.

Knowledge Criteria

Virology and epidemiology:
- Rubella virus
- Pathophysiology of maternal and fetal infection, including congenital rubella syndrome (CRS)
- Mode and risk of transmission
- Epidemiology of infection in pregnancy.

Screening and diagnosis:
- Rationale for and organisation of screening programme
- Laboratory tests
- Maternal serology (ELISA)
- Fetal diagnosis – amniotic fluid PCR, serology
- Ultrasound features of CRS

Management:
- Differential diagnosis
- rash/fever/arthralgia/lymphadenopathy in pregnancy
- Maternal and fetal risks
- Termination of pregnancy.

Prevention:
- Rubella vaccination programme
- Postnatal vaccination.

Outcome:
- Sequelae of congenital rubella syndrome, including eye disorders, heart defects, neurological defects.

Pharmacology, including adverse effects:
- Rubella vaccine.

Clinical Competency

Take an appropriate history.

Perform an examination to assess fever, lymphadenopathy, arthralgia.

Manage a pregnant woman found to be susceptible to rubella:
- Arrange and interpret appropriate investigations if suspected exposure
- Arrange postnatal vaccination.

Manage a case of rubella in pregnancy:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks
- Arrange, where appropriate, termination of pregnancy.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to diagnose rubella infection.

Ability to formulate and implement a management plan in a susceptible women exposed to rubella.

Ability to counsel women about vaccination.

Ability to perform and interpret appropriate investigations, including ultrasound.

Ability to formulate, implement and, where appropriate, modify a management plan in women with rubella infection.

Ability to liaise with virologists and neonatologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Management options, including termination of pregnancy.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - virology
    - neonatology
- NCCWCH. *Antenatal Care*. Clinical Guideline.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.7 Varicella

Objective

To be able to carry out appropriate assessment and management of women with varicella zoster infection in pregnancy.

Knowledge Criteria

Virology and epidemiology:
- Varicella zoster virus
- Pathophysiology of varicella, zoster and congenital varicella syndrome (CVS)
- Mode and risk of transmission
- Epidemiology of infection in pregnancy.

Management:
- Differential diagnosis vesicular rash
- Screening (HSV serology)
- Fetal diagnosis (ultrasound, serology, viral DNA)
- Maternal risks (lung/central nervous system involvement)
- Acyclovir
- Fetal risks (CVS).

Outcome:
- Sequelae of congenital CVS.

Prevention:
- Varicella vaccination programme.

Pharmacology, including adverse effects: Varicella zoster immunoglobulin (VZIG).

Clinical Competency

Take an appropriate history.

Perform an examination to assess vesicular rash.

Manage a pregnant woman found to be susceptible to varicella:
- Arrange and interpret appropriate investigations if suspected exposure
- Institute VZIG
- Arrange postnatal vaccination.

Manage a case of varicella/zoster in pregnancy:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks
- Institute aciclovir where appropriate
- Institute appropriate maternal and fetal monitoring
- Perform ultrasound to screen for CVS.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to diagnose varicella zoster infection

Ability to formulate and implement a management plan in a susceptible women exposed to varicella zoster

Ability to counsel women about vaccination.

Ability to perform and interpret appropriate investigations, including ultrasound.

Ability to formulate, implement and, where appropriate, modify a management plan in women with varicella zoster.
Ability to liaise with virologists and neonatologists.

Ability to counsel women and their partners about: Maternal and fetal risks Benefits of aciclovir Management options, including termination of pregnancy.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - virology
    - neonatology.
- Personal study.
- RCOG. *Chickenpox in Pregnancy*. Green-top Guideline No. 13.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions.

6.8 Toxoplasmosis

Objective

To be able to carry out appropriate assessment and management of women with toxoplasmosis infection in pregnancy.

Knowledge Criteria

Parasitology and epidemiology:
- *Toxoplasma gondii*
- Pathophysiology maternal and fetal infection
- Mode and risk of transmission
- Epidemiology of infection in pregnancy (high-risk groups, geographical variation).

Screening and diagnosis:
- Laboratory tests:
    - maternal serology (dye test, ELISA, agglutination assays)
    - immunoglobulin G avidity tests
    - fetal diagnosis (ultrasound, amniotic fluid PCR, viral DNA)
- Ultrasound features of fetal infection
- Distant vs. recent infection.

Management:
- Supportive care
- Maternal and fetal risks
- Toxoplasmosis infection in immunocompromised women
- Maternal therapy (spiramycin)
- Fetal therapy (pyrimethamine/sulfadiazine)
- Termination of pregnancy.

Outcome:
- Sequelae of congenital toxoplasmosis.

Pharmacology, including adverse effects:
- Spiramycin
- Pyrimethamine/sulfadiazine.

Clinical Competency

Take an appropriate history.

Manage a pregnant woman found to be susceptible to toxoplasmosis:
- Arrange and interpret appropriate investigations if suspected exposure
- Counsel regarding preventative strategies.

Manage a case of toxoplasmosis infection in pregnancy:
- Arrange and interpret appropriate maternal and fetal investigations
- Perform an ultrasound scan to detect features of fetal toxoplasmosis
- Institute appropriate supportive care and monitoring
- Counsel regarding maternal and fetal risks
- Institute spiramycin and pyrimethamine/sulfadiazine, where appropriate
- Arrange, where appropriate, termination of pregnancy.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to formulate and implement a management plan in a susceptible woman.

Ability to counsel regarding prevention.

Ability to perform and interpret appropriate investigations, including ultrasound.

Ability to formulate, implement and, where appropriate, modify a management plan in women with toxoplasmosis.

Ability to liaise with microbiologists and neonatologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Management options, including termination of pregnancy
- Benefits and risks of spiramycin and pyrimethamine/sulfadiazine.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - virology
    - neonatology Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.9 Malaria

Objective

To be able to carry out appropriate assessment and management of women with malaria infection in pregnancy.

To be able to advise women travelling abroad about prevention of malaria.

Knowledge Criteria

Parasitology and epidemiology:
- Plasmodium genus
- Pathophysiology of malaria, including severe disease and placental/fetal infection
- Mode and risk of transmission
- Epidemiology of malarial infection, including chloroquine resistance.

Management:
- Diagnosis (blood smears)
- Supportive care, including management of anaemia
- Anti-malarial treatment, including chloroquine, quinine, mefloquine, clindamycin
- Severe disease, including renal failure, pulmonary oedema, severe anaemia, hypoglycaemia
- Fetal complications (fetal growth restriction/preterm birth).

Prevention:
- Avoidance of travel to endemic areas
- Spray/nets
- Chemoprophylaxis

Pharmacology, including adverse effects:
- Chloroquine
- Mefloquine.

Clinical Competency

Take an appropriate history.

Perform an examination to assess fever.

Manage women travelling to endemic areas:
- Counsel women about preventative measures
- Institute appropriate chemoprophylaxis.

Manage a case of malarial infection in pregnancy:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks
- Institute anti-malarial treatment
- Refer, where appropriate, for further assessment and treatment.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to counsel women travelling to endemic areas:
- Risks of infection
- Prevention, including chemoprophylaxis.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with malaria infection in pregnancy.

Ability to liaise with microbiologists and consultants in infectious disease.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Management options, including anti-malarial treatment
- Breastfeeding.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in microbiology.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.10 Tuberculosis

Objective

To be able to carry out appropriate assessment and management of women with or at risk of tuberculosis (TB) infection in pregnancy.

Knowledge criteria

Microbiology and epidemiology:
- Mycobacterium tuberculosis
- Pathophysiology of TB, including infection vs. pulmonary/extrapulmonary disease
- Mode and risk of transmission
- Epidemiology of TB infection in pregnancy, including high-risk groups.

Management:
- Differential diagnosis fever/cough
- Diagnosis (tuberculin testing, direct identification bacilli, culture)
- Anti-tuberculous treatment, including isoniazid (+ pyridoxine), rifampicin, ethambutol
- Extrapulmonary disease.

Prevention:
- Procedures for prevention and control, including contact tracing
- BCG vaccination
- Isoniazid prophylaxis (in high-risk neonates)

Pharmacology, including adverse effects:
- Isoniazid
- Rifampicin
- Ethambutol.

Clinical Competency

Take an appropriate history.

Manage women with previous history of positive tuberculin test/TB:
- Arrange and interpret appropriate investigations and follow-up
- Counsel regarding maternal/neonatal risks.

Manage a case of tuberculosis in pregnancy:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and neonatal risks
- Institute anti-TB treatment
- Refer, where appropriate, for further assessment and treatment.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with previous positive tuberculin test/TB.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with TB during pregnancy.

Ability to liaise with microbiologists, consultants in infectious disease and neonatologists.

Ability to counsel women and their partners about:
- Maternal and neonatal risks
- Management options including anti-TB treatment
- Prevention of neonatal infection
- Breastfeeding.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - microbiology
    - neonatology.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.11 Streptococcal Disease

Objective

To be able to carry out appropriate assessment and management of women with group A streptococcal (GAS) infection in pregnancy.

To be able to carry out appropriate assessment and management of women with group B haemolytic streptococcus (GBS) infection in pregnancy.

Knowledge Criteria

Microbiology and epidemiology:
- Streptococcal species
- Pathophysiology of GAS disease, including toxic shock syndrome and other invasive infections
- Pathophysiology of GBS disease (adult and neonate)
- Mode and risk of transmission
- Epidemiology of streptococcal infection in pregnancy and the puerperium, including risk factors and colonisation rates

Screening and diagnosis:
- Differential diagnosis:
    - septic shock/fever
    - vaginitis/vaginal discharge (see 6.10)
    - chorioamnionitis/postpartum endometritis
- Laboratory diagnosis (swabs/culture)
- Risks and benefits of GBS screening strategies:
    - routine bacteriological screening
    - risk-based screening.

Management:
- GAS infection (supportive care/antibiotics)
- GBS infection (intrapartum antibiotic prophylaxis)
    - GBS carrier
    - other groups (e.g. suspected chorioamnionitis)
- ‘at risk’ newborn infants.

Outcome:
- Early-and late-onset GBS infection in newborn

Pharmacology, including adverse effects:
- Penicillin G
- Clindamycin.

Clinical Competency

Take an appropriate history.

Perform an examination to assess puerperal fever/sepsis.

Counsel women about screening for GBS in pregnancy:
- Routine screening
- Screening in high risk cases (e.g. preterm prelabour rupture of membranes, previous neonatal GBS).

Manage a case of GBS infection in pregnancy;
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks
- Institute intrapartum antibiotic prophylaxis.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability counsel women:
- Before screening for GBS
- After positive result

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with GBS infection in pregnancy.

Ability to liaise with microbiologists and neonatologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Management options, including intrapartum antibiotic prophylaxis
- Risks of early-onset GBS infection in the newborn.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - microbiology
    - neonatology.
- Personal study
- RCOG. *Prevention of Early Onset Neonatal Group B Streptococcal Disease*. Green-top Guideline No. 36

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.12 Syphilis

Objective

To be able to carry out appropriate assessment and management of women with syphilis infection in pregnancy.

Knowledge Criteria

Microbiology and epidemiology:
- *Treponema pallidum*
- Pathophysiology of syphilis, including stages of adult disease and congenital infection
- Mode and risk transmission
- Epidemiology of syphilis infection in pregnancy.

Screening and diagnosis:
- Rationale and organisation of screening programme
- Serological tests, (including nonspecific and specific antibody tests
- Dark field visualisation
- Differential diagnosis of genital ulcer
- Ultrasound features of fetal infection.

Management:
- Penicillin G (see 6.11), including management of Jarisch–-Herxheimer reaction
- Contact tracing.

Outcome:
- Congenital syphilis (early and late).

Clinical Competency

Take an appropriate history.

Perform an examination to assess genital ulcer.

Counsel women about screening for syphilis in pregnancy:
- Routine screening
- Screening in high risk cases.

Manage a case of syphilis infection in pregnancy:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks
- Institute treatment with penicillin
- Refer for further assessment, treatment and contact tracing.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to counsel women:
- Before screening for syphilis
- After positive result.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with syphilis infection in pregnancy.

Ability to liaise with microbiologists, genitourinary consultants and neonatologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Penicillin treatment.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - microbiology
    - neonatology.
- NCCWCH. *Antenatal Care*. Clinical Guideline.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.13 Other Sexually Transmitted Diseases in Pregnancy

Objective

To be able to carry out appropriate assessment and management of women with a sexually transmitted disease (STD) in pregnancy.

Knowledge Criteria

Microbiology and epidemiology:
- *Neisseria gonorrhoea*, *Chlamydia trachomatis*, genital mycoplasma
- Pathophysiology of gonococcal, chlamydial and mycoplasmal disease, including chorioamnionitis and postpartum endometritis
- Epidemiology of STDs in pregnancy

Screening and diagnosis:
- Rationale and organisation of screening for chlamydia in pregnancy
- Differential diagnosis of vaginal discharge, cervicitis in pregnancy
- Laboratory diagnosis (swabs/culture, nucleic acid amplification techniques)

Management:
- Antibiotics:
    - Chlamydia – azithromycin
    - Gonorrhoea – ceftriaxone, cefixime
    - Mycoplasmas – erythromycin, clindamycin
- Contact tracing (where appropriate)
- Fetal risks, including preterm prelabour rupture of membranes, preterm birth (see 4.5)
- Maternal risks (chorioamnionitis, endometritis).

Outcome:
- Neonatal infection (conjunctivitis, pneumonia)

Pharmacology, including adverse effects:
- Azithromycin
- Ceftriaxone.

Clinical Competency

Take an appropriate history.

Manage a case of gonorrhoea in pregnancy:
- Arrange and interpret appropriate investigations, including screening for other STDs
- Counsel regarding maternal, fetal and neonatal risks
- Institute antibiotic therapy
- Refer for further assessment, treatment and contact tracing.

Manage a case of chlamydia in pregnancy;
- Arrange and interpret appropriate investigations, including screening for other STDs
- Counsel regarding maternal, fetal and neonatal risks
- Institute antibiotic therapy
- Refer for further assessment, treatment and contact tracing.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with gonorrhoea in pregnancy.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with chlamydia in pregnancy.

Ability to liaise with microbiologists, genitourinary medicine consultants and neonatologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Antibiotic therapy
- Risks of neonatal infection and outcome.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - microbiology
    - neonatology.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.14 Bacterial Vaginosis

Objective

To be able to carry out appropriate assessment and management of women with bacterial vaginosis (BV) in pregnancy.

Knowledge Criteria

Microbiology and epidemiology:
- *Garnerella vaginalis*, selected anaerobes, *Mycoplasma hominis*
- Pathophysiology of BV
- Epidemiology of BV in pregnancy.

Screening and diagnosis:
- Rationale for screening in high-risk groups, including previous preterm birth
- Differential diagnosis of vaginal discharge (see 6.11, 6.13)
- Clinical diagnosis (Amsel criteria), Gram stain, vaginal discharge.

Management:
- Treatment – metronidazole, clindamycin
- Fetal risks, including miscarriage, preterm birth (see 4.5).

Pharmacology, including adverse effects:
- Metronidazole
- Clindamycin.

Clinical Competency

Take an appropriate history.

Perform an examination to diagnose BV in pregnancy.

Manage a case of BV in pregnancy:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks
- Institute antibiotic therapy.

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to diagnose BV in pregnancy.

Ability to formulate, implement and ,where appropriate, modify a management plan in a woman with BV in pregnancy.

Ability to liaise with microbiologists.

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Antibiotic therapy.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in microbiology.
- Personal study.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.15 Asymptomatic Bacteriuria and Acute Symptomatic Urinary Tract Infection

Objective

To be able to carry out appropriate assessment and management of women with asymptomatic bacteriuria (AB) in pregnancy.

To be able to carry out appropriate assessment and management of women with urinary tract infection (UTI) in pregnancy.

Knowledge Criteria

Microbiology and epidemiology:
- *Escherichia coli*, Klebsiella/Proteus/Pseudomonas sp, coagulasenegative staphylococci
- Pathophysiology of UTI/acute pyelonephritis
- Epidemiology of asymptomatic bacteriuria and UTI in pregnancy.

Screening and diagnosis:
- Rationale for and organisation of screening for AB during pregnancy
- Midstream urine culture (colony counts)
- Differential diagnosis of acute abdominal pain in pregnancy, antenatal pyrexia (see 6.16)
- Diagnosis of relapse/reinfection.

Management:
- Antibiotic therapy:
    - AB – nitrofurantoin
    - UTI – ampicillin, cephalosporins/secondline therapies
    - Duration of therapy
- Maternal risks, including acute pyelonephritis, Gram-negative sepsis, acute renal failure
- Fetal risks, including preterm birth (see 4.5)
- Postnatal investigation (intravenous urogram)

Pharmacology, including adverse effects:
- Nitrofurantoin
- Broad-spectrum penicillins (e.g. ampicillin)
- Cephalosporins (e.g. cefalexin).

Clinical Competency

Take an appropriate history.

Counsel women about screening for AB in pregnancy.
Manage a case of AB in pregnancy:

- Arrange and interpret appropriate investigations
- Counsel regarding maternal risks
- Institute and where appropriate, modify antibiotic therapy
- Arrange, where appropriate, postnatal intravenous urogram.

Manage a case of symptomatic UTI in pregnancy;

- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks
- Institute and where appropriate, modify antibiotic therapy
- Refer, where appropriate, for further assessment/treatment
- Arrange, where appropriate, for postnatal intravenous urogram.

Professional Skills and Attitudes

Ability to take an appropriate history.

Ability to counsel women:

- before screening for AB
- after positive result.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with AB detected during pregnancy.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with symptomatic UTI in pregnancy.

Ability to liaise with microbiologists and nephrologists (where appropriate).

Ability to counsel women and their partners about:

- Maternal and fetal risks
- Antibiotic therapy
- Postnatal investigation.

Training Support

- Observation of and discussion with senior medical staff.
- Appropriate postgraduate courses.
- Attachments in:
    - maternal medicine
    - microbiology.
- NCCWCH. *Antenatal Care*. Clinical Guideline.
- Personal study

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

6.16 Other Infective Conditions

Objective

To be able to carry out appropriate assessment and management of women with acute chorioamnionitis.

To be able to carry out appropriate assessment and management of women with puerperal sepsis.

Knowledge Criteria

Microbiology and epidemiology:
- Common organisms implicated in chorioamnionitis and puerperal sepsis, including group A and group B streptococcus (see 6.11), Gram-negative bacilli, anaerobes, genital mycoplasmas (see 6.13)
- Pathophysiology of acute chorioamnionitis (see 4.5) and puerperal sepsis, including endometritis, pelvic vein thrombophlebitis, urinary tract infection (see 6.15)
- Epidemiology of chorioamnionitis and puerperal pyrexia/infection.

Diagnosis and management of chorioamnionitis:
- Differential diagnosis of acute abdominal pain in pregnancy, antenatal pyrexia (see 6.11)
- Investigations (blood, cultures, ultrasound)
- Antibiotic therapy
- Fetal risks, including fetal death, preterm labour
- Maternal risks, including Gram-negative sepsis, acute renal failure.

Diagnosis and management of postnatal sepsis:
- Differential diagnosis of puerperal pyrexia Investigations (culture, ultrasound, CT/MRI)
- Antibiotic therapy, including clindamycin/gentamicin
- Maternal risks, including Gram-negative sepsis, acute renal failure.

Pharmacology, including adverse effects:
- Clindamycin
- Gentamicin.

Clinical Competency

Take an appropriate history.

Perform an examination to assess acute abdominal pain in pregnancy.

Manage a case of acute chorioamnionitis:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal and fetal risks
- Institute and, where appropriate, modify antibiotic therapy
- Refer, where appropriate, for further assessment and treatment.
- Mode and timing of delivery, including, where appropriate, termination of pregnancy.

Perform an examination to assess postnatal pyrexia.

Manage a case of puerperal pyrexia:
- Arrange and interpret appropriate investigations
- Counsel regarding maternal risks
- Institute and, where appropriate, modify antibiotic therapy
- Refer, where appropriate, for further assessment/treatment,

Professional Skills and Attitudes

Ability to take an appropriate history and conduct an examination to assess a woman with acute abdominal pain in pregnancy.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with acute chorioamnionitis.

Ability to take an appropriate history and conduct an examination to assess a woman with puerperal pyrexia.

Ability to formulate, implement and, where appropriate, modify a management plan in a woman with puerperal sepsis.

Ability to liaise with microbiologists and pathologists:

Ability to counsel women and their partners about:
- Maternal and fetal risks
- Antibiotic therapy
- Delivery, including termination of pregnancy.

Training Support

- Observation of and discussion with senior medical staff.
- Attachments in microbiology.

Evidence

- Log of experience and competence
- Mini-CEX
- Case-based discussions

Module 6. Infectious Diseases

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Human Imunodeficiency Virus										
Positive HIV result after screening										
HIV infection										
Hepatitis										
Positive hepatitis result after screening										
Hepatitis C infection										
Acute hepatitis B infection										
Chronic hepatitis B carrier										
Other viral infections										
Acute genital herpes simplex infection										
Acute cytomegalovirus infection										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required No. in 1st 6 months / No. in 2nd 6 months	Number of cases									Total
	1st year			2nd year			3rd year			
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Acute parvovirus B19 infection										
Acute varicella infection										
Toxoplasmosis										
Acute toxoplasmosis infection										
Urinary tract infection										
Asymptomatic bacteruria										
Lower urinary tract infection										
Acute pyelonephritis										
Pulmonary infection										
Pneumonia										
Tuberculosis										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

= Not required

No. in 1st 6 months / No. in 2nd 6 months

	Number of cases									
	1st year			2nd year			3rd year			Total
	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	Observed	Direct supervision	Independent practice	
Genital tract infection										
Chlamydia										
Bacterial vaginosis										
Group B haemolytic streptococcus										
Acute chorioamnionitis										
Puerperal sepsis										
Other infectious conditions										
Malaria										
Acute appendicitis										
Acute cholecystitis										

Trainer Signature (1st 6 months) _____ _____ _____

Signature (2nd 6 months) _____ _____ _____

Module VII. Clinical and Administrative skills

Section 1: Communication, team working and leadership skills

Learning outcomes:

- To demonstrate effective communication with patients and colleagues
- To demonstrate good working relationships with colleagues
- To demonstrate the ability to work in clinical teams and have the necessary leadership skills

Knowledge criteria	GMP	Clinical competency	GMP	Professional skills and attitudes	GMP	Training support	Evidence/assessment

Communication:
• How to structure a patient interview to identify:
  • Concerns and priorities
  • Expectations
  • Understanding an acceptance
• Breaking bad news
• Bereavement process and behavior
 	
Team working:
• Roles and responsibilities of team members
• Factors that influence and inhibit team development
• Ways of improving team working including:
  • Objective setting and planning
  • Motivation and demotivation
  • Organization
  • Respect
• Contribution of mentoring and supervision
 	
Leadership:
• Qualities and behavior
• Styles
• Implementing change and change management (see 7.5)
	3	Communicate both verbally and in writing with patients and relatives, including:
		• Breaking bad news
		• Appropriate use of interpreters
		
		Communicate effectively with colleagues both verbally and in writing
			3	Ability to communicate effectively with:
				Colleagues
				Patients and relatives
				
				Ability to break bad news appropriately and to support distress
				
				Ability to work effectively within a subspecialty team.
				
				Ability to lead a clinical team.
				
				Ability to respect others' opinions.
				
				Ability to deal with difficult colleagues
					3	Observation of and discussion with senior medical staff	STPS report
							
							Team observations (TO1/2 forms)

Section 1: Communication, team working and leadership skills					
Year 1					
Summary of team observations	Unable to comment	Unsatisfactory	Improvement needed	Satisfactory	Good
Treats women politely and considerately					
Involves woman in decisions about her care					
Respects patient's privacy and dignity					
Respects confidentiality					
Responds when asked to review a patient					
Liaises with colleagues about continuing care of patient					
Works as a member of a team					
Accepts criticism and responds constructively					
Keeps records of acceptable quality					
Keeps up to date with administrative tasks					
Acts with own capability, seeks advice appropriately					
Delegates work/supervises junior staff appropriately					
Manages time effectively					

Comments	

Section 1: Communication, team working and leadership skills					
Year 2					
Summary of team observations	Unable to comment	Unsatisfactory	Improvement needed	Satisfactory	Good
Treats women politely and considerately					
Involves woman in decisions about her care					
Respects patient's privacy and dignity					
Respects confidentiality					
Responds when asked to review a patient					
Liaises with colleagues about continuing care of patient					
Works as a member of a team					
Accepts criticism and responds constructively					
Keeps records of acceptable quality					
Keeps up to date with administrative tasks					
Acts with own capability, seeks advice appropriately					
Delegates work/supervises junior staff appropriately					
Manages time effectively					

Comments	

COMPLETION OF SECTION 1

I confirm that all components of the module have been successfully completed:

Date	Name of subspecialty training programme supervisor	Signature of subspecialty training programme supervisor

Section 2: Good Medical Practice and Maintaining Trust

Learning outcomes:

- To inculcate the habit of lifelong learning and continued professional development
- To acquire the knowledge, skills and attitude to act in a professional manner at all times

Knowledge criteria	GMP	Clinical competency	GMP	Professional skills and attitudes	GMP	Training support	Evidence/assessment
Continuing professional development Doctor-patient relationship Personal health Understanding of relevance of: • The Hong Kong College of Obstetricians and Gynaecologists • General Medical Council, British Medical Association • Specialist Societies • Specialty Training Committee and Postgraduate Dean • Defence Union Ethical principles: • Respect for autonomy • Beneficence and non-malfeasance • Justice Informed consent Confidentiality Legal issues: • Death certification • Mental illness • Advance directives, living wills	4	Recognise and use learning opportunities Gain informed consent for: • Patient care and procedures • Research	4	Ability to recognise and use learning opportunities Ability to learn from colleagues and experience Ability to work independently but seek advice appropriately Ability to deal appropriately with challenging behaviour Ability to understand: Ethical issues relevant to subspecialty Legal responsibility Ability to recognise: Own limitations When personal health takes priority over work pressure Ability to gain informed consent	4	Observation of and discussion with senior medical staff	STPS report Team observations

COMPLETION OF SECTION 2

I confirm that all components of the module have been successfully completed:

Date	Name of subspecialty training programme supervisor	Signature of subspecialty training programme supervisor

Section 3: Teaching

Learning outcomes:

- To understand and demonstrate appropriate skills and attitudes in relation to teaching

Knowledge criteria	GMP	Clinical competency	GMP	Professional skills and attitudes	GMP	Training support	Evidence/assessment
Teaching strategies appropriate to adult leaning HKCOG core and advanced training relevant to subspecialty Identification of learning principles, needs and styles Principles of evaluation	1,3	Prepare and deliver a teaching session: • Small group (less than 10 people) • Large group (more than 20 people) • At the bedside Teach practical procedures, including ultrasound	1,3	Ability to communicate effectively Ability to teach postgraduates on topic(s) relevant to subspecialty using appropriate teaching resources Ability to organise a programme of postgraduate education, e.g. short course or multidisciplinary meeting	1,3	Observation of and discussion with senior medical staff Appropriate postgraduate courses	Log of experience and competence

Section 3: Teaching			
Teaching	Date	Signature	Comments
Prepare and deliver a teaching session: small group			
Prepare and deliver a teaching session: large group			
Organise short course or multidisciplinary meeting			

COMPLETION OF SECTION 3

I confirm that all components of the module have been successfully completed:

Date	Name of subspecialty training programme supervisor	Signature of subspecialty training programme supervisor

Section 4: Research

Learning outcomes:

- Understand and demonstrate appropriate skills and attitudes in relation to research relevant to the subspecialty

Knowledge criteria	GMP	Clinical competency	GMP	Professional skills and attitudes	GMP	Training support	Evidence/assessment
Epidemiological techniques, population parameters, sampling techniques and bias Randomised trials and meta-analysis Statistical tests: • Parametric tests • Non-parametric tests • Correlation and regression • Multivariate analysis • Chi-squared analysis	1	Perform a scientific experiment:: • Review advice • Develop a hypothesis and design experiment to test hypothesis • Define sample • Conduct experiment • Perform statistical analysis of data • Draw appropriate conclusions form results	1	Ability to design and conduct a scientific experiment Ability to critically appraise scientific studies Ability to write up research (as evidence by award of MD or PhD thesis or two first-author papers in citable refereed MEDLINE journals) Ability to present a piece of scientific research	1,3	Discussion with senior staff (clinicians, scientists, statisticians) Attendance at scientific meetings Personal study Appropriate postgraduate courses (e.g. research methods, statistics)	Peer-reviewed publications and/or higher degree

Module 4: Research
Papers published in citable refereed MEDLING journals during training
Full reference

Section 4: Research
Other publications during training
Full reference

Section 4: Research		
Scientific presentations during training		
Date	Meeting	Title of presentation

COMPLETION OF Section 4

I confirm that all components of the module have been successfully completed:

Date	Name of subspecialty training programme supervisor	Signature of subspecialty training programme supervisor

Section 5: Clinical Governance and Risk Management

Learning outcomes:

- To understand and demonstrate appropriate knowledge and skills in relation to clinical governance and risk management

Knowledge criteria	GMP	Clinical competency	GMP	Professional skills and attitudes	GMP	Training support	Evidence/assessment

Clinical governance:
• Organisational framework at local, strategic health authority and national levels
• Standards, e.g. National Service Framework, National Institute for Health and Clinical Excellence, HKCOG guidelines
 	
Clinical effectiveness:
• Principles of evidence-based practice
• Types of clinical trial and evidence classification
• Grades of recommendation
• Guidelines and integrated care pathways
  ○ Formulation
  ○ Advantages and disadvantages
• Clinical audit
• Patient/user involvement
 	
Risk management:
• Incident and near-miss reporting
• Complaints management
• Litigation and claims management
 	
Appraisal and revalidation:
• Principles
• Process
	1,2	Perform clinical audit:
		• Define standard based on evidence
		• Prepare project and collate data
		• Reaudit and close audit loop
		• Formulate policy
		
		Develop and implement a clinical guideline:
		• Purpose and scope
		• Identify and classify evidence
		• Formulate recommendations
		• Identify auditable standards
		
		Participate in risk management:
		• Investigate a critical incident
		• Assess risk
		• Formulate recommendations
		• Debrief staff
		
		Perform appraisal
			1,2,3	Ability to practice evidence-based medicine
				
				Ability to perform a clinical audit relevant to subspecialty
				
				Ability to develop and implement a clinical guideline relevant to subspecialty
				
				Ability to report and investigate a critical incident
				
				Ability to respond to a complaint in a focused and constructive manner
				
				Ability to perform appraisal
					1,2,3	Observation of and discussion with senior medical staff and clinical governance team
						
						Attendance at risk management meetings
						
						Department of Health, HKCOG and NHS trust publications
							Log of experience and competence
							
							STPS report

Section 5: Clinical Governance and Risk Management			
Audit(s) and Guideline(s) Developed			
Title	Date	Signature	Comments

Section 5: Clinical Governance and Risk Management			
	Date	Signature	Comments
Report and investigation of a critical incident			
Respond to a complaint in focused and constructive manner			
Performance of appraisal			

COMPLETION OF SECTION 5

I confirm that all components of the module have been successfully completed:

Date	Name of subspecialty training programme supervisor	Signature of subspecialty training programme supervisor

Section 6: Administration and Service Management

Learning outcomes:

- To understand the structure and organization of the HA services locally
- To understand and demonstrate appropriate skills and attitudes in relation to administration and management

Knowledge criteria	GMP	Clinical competency	GMP	Professional skills and attitudes	GMP	Training support	Evidence/assessment
Organisation of HA services • Cluster services • Share care programmes, strategic health plans in hospitals Manage clinical network for subspecialty service Health and safety Management: • Strategy development • Business planning • Project management Financial resource management Human resources: • Team building • Appointments procedures • Disciplinary procedures Scrutiny of organization: • Healthcare Commission • GMC /educational visits	1,3	Develop and implement organisational change: • Develop strategy • Formulate a business plan • Manage project Participate in recruitment: • Job specification • Interview • Selection	1,3	Ability to develop and implement organisational change Ability to collaborate with: Other professions Other agencies Ability to develop interviewing techniques and those required for performance review	1,3	Observation of and discussion with senior medical and management staff Attendance at directorate management meetings and interviews Management course	Logbook of experience and competence STPS report

COMPLETION OF SECTION 6

I confirm that all components of the module have been successfully completed:

Date	Name of subspecialty training programme supervisor	Signature of subspecialty training programme supervisor

Section 7: Information use and management

Learning outcomes:

- To achieve competence in the use and management of health information

Knowledge criteria	GMP	Clinical competency	GMP	Professional skills and attitudes	GMP	Training support	Evidence/assessment
Input, retrieval and use of data recorded on clinical systems relevant to subspecialty Main local and national projects and initiatives in information technology (IT) and its applications • Npfit and Connecting for Health Confidentiality of data: • Principles and implementation • Role of Caldicott guardian	1	Be able to use relevant: • Software • Databases • Websites	1	Ability to apply principles of confidentiality in context	1	Observation of and discussion with senior medical staff World wide web	STPS report

COMPLETION OF SECTION 7

I confirm that all components of the module have been successfully completed:

Date	Name of subspecialty training programme supervisor	Signature of subspecialty training programme supervisor

Case-based Discussion (CbD)

Case-based Discussion (CbD)
Subspecialty Training in Maternal Fetal Medicine

Trainee name:	
Year of training:	
Date of assessment:	

Clinical setting: Antenatal clinic ☐ | Antenatal Ward ☐ | Labour ward ☐ | Postnatal ward ☐ | Other *(specify):*

Clinical problem category: Antenatal care ☐ | Maternal & Fetal medicine ☐ | Intra-partum ☐ | Post-partum ☐ | Detail:

New or Follow-up: New ☐ FU ☐

Focus of clinical encounter: History ☐ | Diagnosis ☐ | Management ☐ | Explanation ☐

Complexity of case: Low ☐ | Average ☐ | High ☐

Assessor's position: Consultant ☐ | Associate consultant ☐

Please grade the following areas using the scale below	Below Expectations	Borderline	Meets Expectations	Above Expectations	U/C*
1 Medical record keeping	☐	☐	☐	☐	☐
2 Clinical assessment	☐	☐	☐	☐	☐
3 Investigation and referrals	☐	☐	☐	☐	☐
4 Treatment	☐	☐	☐	☐	☐
5 Follow-up and future planning	☐	☐	☐	☐	☐
6 Professionalism	☐	☐	☐	☐	☐
7 Overall clinical judgement	☐	☐	☐	☐	☐
*U/C Please mark this if you have not observed the behaviour and therefore feel unable to comment					

Anything especially good?	Suggestions for development

Agreed action:

Assessors signature

Assessors surname

Date: / / (dd/mm/yyyy)

Time taken for discussion: (in minutes)

Time taken for feedback: (in minutes)

Mini-Clinical Evaluation Exercise (CEX)

Please refer to curriculum and logbook for details of expected competences

Mini-Clinical Evaluation Exercise (CEX) – Subspecialty Training in Maternal Fetal Medicine

Please complete the questions using a cross: ☒ Please use black ink and CAPITAL LETTERS

Trainee name:	
Year of training:	
Date of assessment:	

Clinical setting:	Acute admission ☐	OPD ☐	Inpatient ☐	Other *(specify):*		
Clinical problem category:	Antenatal Clinic ☐	Fetal Medicine ☐	Intra-Partum ☐	Pre pregnancy ☐	Post-Parptum ☐	Detail:
New or Follow-up:	New ☐ FU ☐	**Focus of clinical encounter:**	History ☐	Diagnosis ☐	Management ☐	Explanation ☐
Complexity of case:	Low ☐	Average ☐	High ☐	**Assessor's position:**	Consultant ☐	Associate consultant ☐

Please grade the following areas using the scale indicated at right:	**Below expectations** 1	2	**Borderline** 3	**Meets expectations** 4	**Above expectations** 5	6	**U/C***
1 History taking	☐	☐	☐	☐	☐	☐	☐
2 Physical examination skills	☐	☐	☐	☐	☐	☐	☐
3 Communication skills	☐	☐	☐	☐	☐	☐	☐
4 Clinical judgment	☐	☐	☐	☐	☐	☐	☐
5 Professionalism	☐	☐	☐	☐	☐	☐	☐
6 Organisation and efficiency	☐	☐	☐	☐	☐	☐	☐
7 Overall clinical care	☐	☐	☐	☐	☐	☐	☐

*U/C Please mark this if you have not observed the behavior and therefore feel unable to comment

Anything especially good?	**Suggestions for development**

Agreed action:

Assessors signature	**Date:** / / **(dd/mm/yyyy)**
Assessors surname	**Time taken for discussion:** **(in minutes)**
	Time taken for feedback: **(in minutes)**

Formative OSATS Supervised Learning Event

HKCOG MFM (Formative) OSATS Supervised Learning Event

Trainee name:	**Year:**	**Date:**
Trainer name:		
Procedure:		
Clinical details and complexity:		

This is a **formative** tool designed to give feedback to the trainee about their performance in **this** procedure. Please provide specific, constructive **feedback** to the trainee in verbal and written forms in the box below that you feel will enhance training. There is **NO** overall judgement relating to competence for this event.

The following areas are suggestions to consider about the **overall** observed performance. This includes both the technical and non-technical skills necessary for the procedure and is not an exhaustive list.

Checking equipment/environment	Communication with patients and/or relatives
Peri-operative planning e.g. positioning	Use of assistants
Technical ability	Communication with staff
Selection of instruments and equipment	Forward planning
Economy of movement	Dealing with problems and/or difficulties
Tissue handling	Documentation
Completion of task as appropriate	Safety considerations

Feedback (continued overleaf):

What went well?

What could have gone better?

Learning Plan:

Trainee signature: **Trainer signature:**

Trainee Reflection:

Summative OSATS Assessment of Performance

HKCOG MFM Summative OSATS
Assessment of Performance (Generic)

Trainee name:	**Year:**	**Date:**
Trainer name:		
Procedure:		
Clinical details and complexity:		
Degree of difficulty: Basic/Intermediate/Advanced		**Encounter requested in advance:** Yes / No

This assessment is a **mandatory, summative** tool designed to:

1. Enable judgement of surgical competency in **this** procedure and
2. To provide specific, constructive **feedback** to the trainee about their performance.

There is a judgement to be made in this assessment relating to the overall performance observed: **competent** or **working towards competence**.

Trainees require a minimum of three procedures deemed competent per core procedure. This judgement is **specific** to **this assessment only.**

The following anchor statements are for general guidance about the overall observed level of performance. Suggestions for areas to consider during the assessment are listed overleaf.

For the trainee considered **competent** in the observed procedure it would generally be expected that:

- The trainee was able to perform all aspects of the procedure safely and competently with no or minimal need for help, or in the context of an unexpectedly difficult case, may have needed more assistance for the more difficult aspects of the procedure.

For the trainee considered to be **working towards competence** it would generally be expected that:

- The trainee required significant help throughout or with the majority of steps
- The trainee was unable to perform any of the necessary procedures to be safe and competent at this stage

This trainee performed this observed procedure competently*

This trainee is working towards competence in this procedure*

*Delete as appropriate

Please provide written feedback for the trainee regarding their performance in the box provided overleaf in addition to your direct verbal feedback.

The following areas are suggestions to consider about the overall observed performance. This includes both the technical and non-technical skills necessary for the procedure and is not an exhaustive list.

Checking equipment/environment	Communication with patients and/or relatives
Peri-operative planning e.g. positioning	Use of assistants
Technical ability	Communication with staff
Selection of instruments and equipment	Forward planning
Economy of movement	Dealing with problems and/or difficulties
Tissue handling	Documentation
Completion of task as appropriate	Safety considerations

Feedback:

What went well?
What could have gone better?
Learning plan:

Trainee signature: **Trainer signature:**

HKCOG MFM Summative OSATS
Assessment of Performance (Amniocentesis)

Trainee name:		**Date:**	
Assessor name:		**Post:**	

Gestation:		**Placental site:**	

Clinical details	

Case complexity: **Low** ☐ **Medium** ☐ **High** ☐

Item under observation	**Performed independently**	**Needs help**
	PLEASE TICK RELEVANT BOX	
Appropriate pre-test counselling		
Explanation of procedure		
Appropriate choice of position		
Placement of needle		
Aspiration of sample		
Assessment of sample		
Handling of sample, including labelling		
Rapport with patient during procedure		
Ultrasound check post-procedure		
Checking of blood group		
Post-procedure counselling		
Arrangement for results		

Comments	

HKCOG MFM Summative OSATS
Assessment of Performance (Chorionic Villus Sampling)

Trainee name:		**Date:**	
Assessor name:		**Post:**	

Gestation:		**Placental site:**	

Clinical details	

Case complexity: **Low** ☐ **Medium** ☐ **High** ☐

Item under observation	**Performed independently**	**Needs help**
	PLEASE TICK RELEVANT BOX	
Appropriate pre-test counselling		
Appropriate choice of procedure		
Explanation of procedure		
Appropriate choice of position		
Local anaesthesia		
Placement of needle		
Aspiration of sample		
Assessment of sample		
Handling of sample, including labelling		
Rapport with patient during procedure		
Ultrasound check post-procedure		
Checking of blood group		
Post-procedure counselling		
Arrangement for results		

Comments	

HKCOG MFM Summative OSATS
Assessment of Performance (External Cephalic Version)

Trainee name:		**Date:**	
Assessor name:		**Post:**	

Clinical details	

Case complexity: **Low** ☐ **Medium** ☐ **High** ☐

Item under observation	**Performed independently**	**Needs help**
	PLEASE TICK RELEVANT BOX	
Ensuring appropriate selection of patient*		
Appropriate place of procedure		
Appropriate communication with team		
Appropriate counselling and consent		
Use of tocolysis, if appropriate		
Appropriate preparation including pre-procedure CTG		
Careful ultrasound assessment of fetal and placental position, liquor and identification of body parts		
Safe and systematic movement of fetus		
Regular assessment of fetal wellbeing during procedure		
Ensuring no excessive maternal discomfort		
Ensuring fetal monitoring post-procedure		
Checking appropriate follow up arrangements such as: • Check of rhesus status and give Anti-D as appropriate • Delivery plan		

Comments	

* This should include assessment of fetal size and absence of contraindications to the procedure.

HKCOG MFM Summative OSATS
Assessment of Performance (Fetal Echocardiography)

Trainee name:		**Date:**	
Assessor name:		**Post:**	

Clinical details	

Case complexity: **Low** ☐ **Medium** ☐ **High** ☐

Item under observation	**Performed independently**	**Needs help**
	PLEASE TICK RELEVANT BOX	
Review indication for scan and establish rapport		
Determine cardiac situs and axis		
Determine cardiac size		
Obtain a good four-chamber view*		
Display left ventricular outflow tract and aortic valve		
Examine integrity of ventricular septum		
Display right ventricular outflow tract and pulmonary valve, and show relationship with left		
Demonstrate aortic and pulmonary arches**		
Demonstrate inferior vena cava and superior vena cava		
Perform M mode echocardiography		
Show how colour flow and power Doppler are used in cardiac scanning		
Explain findings to woman and partner		

Comments	

* An adequate four-chamber view should allow the trainee to point out two atria (with the foramen ovale and flap) and two ventricles (the right with the moderator band) and to discuss the relative sizes of the chambers. The septae should be considered and the movement of the atrioventricular valves noted. Offsetting of the tricuspid valve should be demonstrated and the drainage of at least two of the pulmonary valves into the left atrium.

** The arches should be delineated separately with their identifying features pointed out by the trainee; e.g. head and neck vessels arising from the aortic arch.

HKCOG MFM Summative OSATS
Assessment of Performance
(Advanced Management in Postpartum haemorrhage)

Trainee name:		**Date:**	
Assessor name:		**Post:**	

Gestation:		**Primary cause of PPH & final blood loss:**	

Clinical details	

Case complexity: **Low** ☐ **Medium** ☐ **High** ☐

Item under observation	**Performed independently**	**Needs help**
	PLEASE TICK RELEVANT BOX	
Good Leadership and Teamwork		
Good planning, and determined and clear decision making ,		
Situational awareness: existing and anticipated on-going blood loss, coagulation, patient's condition, adequate supporting staffing and their experience, facilities and equipment etc		
Good surgical skill in B-lynch (speed, suturing method, suturing material, adequate tension)		
Good surgical skill in Hysterectomy (speed, dissection, haemostasis, etc)		
Good surgical skill in other haemostatic operation (optional)		
Good documentation of events		
Post-management Counselling & debriefing		

Comments	

HKCOG MFM Summative OSATS
Assessment of Performance (Doppler of Fetal Circulation)

Trainee name:		**Date:**	
Assessor name:		**Post:**	

Gestation:		**Indication:**	

Clinical details	

Case complexity: **Low** ☐ **Medium** ☐ **High** ☐

Item under observation	**Performed independently**			**Needs help**
	PLEASE TICK RELEVANT BOX			
Appropriate pre-test counselling				
Appropriate setting of the USG machine				
	UmbA	MCA	DV	
Correct identification of & optimal positioning of the target sites (umbilical artery, middle cerebral artery, ductus venosus)				
Correct placement of the measuring caliper				
Acquisition of optimal shapes, outlines and scaling of the waveforms				
Correct measurement of velocity / PI / RI / SD ratio				
Correct interpretation of the results				
Post-procedure counselling and appropriate management				

Comments	

Annual Assessment Review Form

ANNUAL ASSESSMENT REVIEW FORM FOR MATERNAL FETAL MEDICINE SUBSPECIALTY TRAINING

To be completed by the Subspecialty Training Programme Supervisor (STPS) and forwarded to HKCOG

Trainee's name: _____

Year of Training: _____

Name of Assessors: _____*(to be completed by HKCOG)*

Date of Review: _____ *(to be completed by HKCOG)*

A = Areas of concern
S = Meets standards for year of training
G = Good standard for year of training

1. GOOD CLINICAL CARE	**A**	**S**	**G**	**Comments**
History & Examination				
Patient Management				
Clinical/Professional judgment				
Reliability/Conscientiousness				
Responsibility				

2. DEVELOPING AND MAINTAINING GOOD MEDICAL PRACTICE	**A**	**S**	**G**	**Comments**
Clinical knowledge				
Self Motivation				
Self Reflection/Insight				
IT skills and development				
Administrative tasks				
Attendance at local educational meetings				

3. WORKING WITH COLLEAGUES	A	S	G	Comments
Relationship with staff				
Teamworking				
Leadership				
Referral & delegation				

4. TEACHING AND TRAINING	A	S	G	Comments
Clinical teaching				
Presentation skills				

5. PROBITY	Area of concern	No known areas of concern

6. HEALTH	Area of concern	No known areas of concern

7. SPECIALTY SKILLS	A	S	G	Comments
Operating skills				
Labour ward management				

8. OSATS:

Where there are areas of major concern, please supply additional information. In this case it is the responsibility of the STPS to alert the assessors.

When a specific competence has been signed off in the logbook, the trainee should continue to record all procedures undertaken in their log of experience and an occasional OSATS in each skill should still be undertaken, as appropriate.

OSATS	**Number undertaken in last year**	**Number completed at standard required for independent practice in last year**	**Date competence signed off in logbook (DD/MM/YY)**
Areas of concern etc			

9. MINI CLINICAL EVALUATION EXERCISE (Mini CEX) AND CASE-BASED DISCUSSIONS (CbDs) (at least 5 mini CEX and 5 CbDs should be done every 6 months) Please attach record sheets of CEX/ CbD for post year	
Number of Mini CEX (Maternal Fetal Medicine) undertaken in last year	
	Any specific comment:
Number of Case-based Discussion (Maternal Fetal Medicine) undertaken in the last year	
	Any specific comment:
Other Comments	

10. LOGBOOKS– please enter date when module was signed off

No.	Module	Date		
		In progress	Completed	Comments
1				
2				
3				
4				
5				
6				
7				

Comments:

11. AUDIT AND TEACHING (undertaken since last Assessment)

12. On-Call Commitment

What on-call shift system is the trainee working?

What is the estimated training time lost due to this shift system?

Is the trainee covering :

a) Emergency gynaecology?

b) Emergency obstetrics

13.RESEARCH

Total number of relevant publications as defined by the Subspecialty Committee:

Does the trainee plan to submit a thesis?

Does the trainee have a thesis submitted?

Comments:

14. ANY OTHER ISSUES OF CONCERN (please outline nature of problems and action plan)

15. SUBSPECIALTY TRAINING PROGRAMME SUPERVISORS REPORT Give a brief overview of the Trainee's main strengths and weaknesses and whether the Trainee is competent to continue with subspecialty training					
Progress to next year of Subspecialty training (tick)	YES		NO		

If there is NO disagreement between the trainee and the assessor about the trainee's progress, please sign Below
Signature of STPS: _____ Print Name: Date: _____ Signature of trainee: _____ Date: _____

Or

If there IS disagreement between the STPS and the trainee about the problem areas or lack of progress, this section should be completed and the documentation from the interview be passed to the TPD or chairperson of the Deanery Training Committee. Both STPS and trainee should sign to indicate the disagreement.
I do not agree that I have problems in the area(s)/modules identified. Areas: Modules: Signature of trainee: _____ Date:_____
I have studied the documentation attached and believe that the problems have been accurately identified.
Signature of STPS: _____ Date: _____

16. ASSESSORS COMMENTS

No.	Module	In progress	Completed	Comments
1				
2				
3				
4				
5				
6				
7				

Comments:

Have there been any changes to the centre since the last visit?

If yes, please specify:

Have there been any changes to the programme since the last visit?

If yes, please specify:

Strengths identified by the assessors relating to trainee:
Problems identified by the assessors relating to trainee:
Remedial action suggested by assessors: **Please note:** The Subspecialty Training Programme Supervisor needs to report in writing to the Subspecialty Committee how the above recommendations made have been addressed within 3 months of the review.
Are there specific problems with the training programme? If yes, were these of significant severity that these needed to be highlighted to the Deanery for action?
Signature of Assessor: _____ Date: _____ Signature of Assessor: _____ Date: _____