SITM: Prenatal Diagnosis (PD)

SECTION 1: CAPABILITIES IN PRACTICE (CiP)

PD CiP 1: The doctor can use ultrasound to recognise where fetal anatomy is not normal.	
Key skills	**Descriptors**
Demonstrates normal structural findings in all trimesters and recognises iwhen they cannot be demonstrated	• Performs and records a detailed, systematic ultrasound of the fetus in line with NHS Fetal Anomaly Screening Programme (FASP) guidance. • Understands the strengths and limitations of ultrasound for each organ system within each trimester. • Explains normal anatomical views to the pregnant person. • Documents and records normal anatomical views. • Recognises when image quality is technically poor. • Can explain next steps to the pregnant person if normal views cannot be obtained.

Evidence to inform decision	
• Reflective practice • NOTSS • TO2 • CbD • Mini-CEX • OSATS (see below)	• RCOG Learning • FASP online training • Local and deanery teaching • Attendance at relevant courses and conferences • Log of cases and outcomes • Attendance at fetal medicine clinics • Attendance at multidisciplinary team (MDT) meetings • Attendance at specialist neonatal and paediatric clinics • Examples of anonymised birth plans

Knowledge criteria
• The normal appearance on ultrasound scans, in all trimesters, of the fetal central nervous system (CNS), face and neck, thorax, cardiovascular system, abdominal wall and gastrointestinal tract, urogenital system, and the fetal skeleton and extremities • Local protocols for follow up, if any, after an incomplete anatomy scan • Normal embryology of all body systems, and the common fetal anomalies that can happen when they do not develop in the way they should, as identified by FASP. • Normal fetal behaviour and activity, and abnormalities of this • Fetal circulation, and how it adapts at birth • Diagnostic features of each condition targeted by FASP, their differential diagnosis and chance of structural, chromosomal and syndromic associations. These conditions are Trisomy 21, 18

and 13, anencephaly, spina bifida, congenital diaphragmatic hernia, gastroschisis, exomphalos, renal agenesis, facial cleft, hypoplastic right or left heart and lethal skeletal dysplasia • The thresholds for diagnosing mild, moderate and severe ventriculomegaly measurements, and the potential implications of the different severities of ventriculomegaly • The role of magnetic resonance imaging (MRI) for CNS lesions • The difference between Dandy-Walker malformation, Dandy-Walker Variant and mega cisterna magna, the implications of each and the pitfalls in prenatal diagnosis • The common fetal tachycardia and bradycardia arrhythmias and the role of the paediatric cardiologist in their management • The different types of ventricular septal defect (VSD) and their association with cardiac, extracardiac and chromosomal anomalies. Understand the role of the paediatric cardiologist in their management • The ultrasound features of transposition of the great arteries, atresia of either outflow tract, stenosis of either outflow tract, double outlet right ventricle or a common outflow tract (truncus arteriosus) • The association of these conditions with further cardiac, extracardiac and chromosomal anomalies • The role of the paediatric cardiologist in the management of fetal cardiac problems • The ultrasound features of gastrointestinal (GI) atresia, associations and surgical options following birth • The spectrum of ultrasound findings of echogenic bowel and its association with chromosomal anomalies, cystic fibrosis, growth restriction and viral infections • Urinary tract obstruction and multi cystic dysplastic kidney (MCDK): aetiology, spectrum of severity, postnatal investigation and the likely short- and long-term impact of these conditions • The local pathway for postnatal referral for talipes and the Ponseti approach to treatment • Limb reduction defects: associations and aetiology • Findings suggestive of lethal skeletal dysplasia and the features of the more common non-lethal dysplasias, particularly certain types of osteogenesis imperfecta and achondroplasia • A differential diagnosis for non-immune hydrops, the need for tertiary referral and the range of investigations likely to be offered

PD CiP 2: The doctor can assess and investigate a pregnancy where there are concerns about the fetus.	
Key skills	**Descriptors**
Can provide genetic counselling in common prenatal situations	• Takes medical history and constructs, where appropriate, a family tree for people who are pregnant, or have a chance of, genetic conditions. • Explains common modes of Mendelian and multifactorial inheritance, and recurrence risks. • Counsels for previous trisomy and monosomy X. • Counsels for previous neural tube defect.

Provides initial counselling for common fetal structural anomalies and manages people in partnership with tertiary fetal medicine services	• Is experienced in carrying out ultrasound diagnosis and managing pregnancies complicated by fetal anomalies that are covered by the FASP. • Discusses other potential prenatal tests such as fetal karyotyping.. • Recognises when to refer the person who is pregnant to a tertiary centre and how best to share care and monitoring. • Liaises with the tertiary centre and the MDT to manage pregnant people with fetal anomalies. • Formulates, implements and, where appropriate, modifies management plan, in collaboration with subspecialists. • Counsels pregnant people and their partners about the fetal risks, implications for the pregnancy and the long-term outcome. • Signposts pregnant people to external sources of information and support. • Constructs a follow-up plan for the pregnancy to support the pregnant person and plan next steps. • Plans birth and appropriate neonatal support with a fetal medicine specialist.
Counsels and manages pregnancies at risk of fetal infection	• Investigates common fetal infections. • Works with virology to interpret laboratory results for each infection. • Explains the potential long-term effects of fetal infections on fetuses and newborns. • Recognises when to involve other specialists in the care of a pregnant person with a suspected or confirmed fetal infection and plans for the sharing of care and monitoring. • Liaises appropriately with the tertiary centre and the MDT to manage fetal infection.
Counsels and manages severe early fetal growth restriction (FGR)	• Is able to produce a differential diagnosis for severe early FGR. • Knows when and which further investigations should be offered for severe early FGR. • Liaises with the fetal medicine tertiary referral centre about diagnosis of severe early FGR and to manage it.
Counsels pregnant person about prenatal investigations	• Understands both the non-invasive and invasive options and is able to discuss the risks and benefits, facilitating choice. • Understands the different levels of resolution of genetic testing and can communicate the importance of this to parents. • Explains the risks and benefits of each procedure to the pregnant person and any alternatives.

	• Communicates the scope and limitations of these tests. • Describes how prenatal samples are processed and when, and how, the results are given. • Offers genetic counselling where appropriate.

Evidence to inform decision	
• Reflective practice • NOTSS • TO2 • CbD • Mini-CEX	• RCOG Learning • Local and deanery teaching • Attendance at relevant courses and conferences • Attendance at clinical genetics clinics • Log of cases and outcomes • Attendance at fetal medicine clinics • Attendance at MDT meetings • Attendance at specialist neonatal and paediatric clinics • Examples of anonymised birth plans

Knowledge criteria

- The genetic basis for trisomy 21, 18 and 13 and the ultrasound features associated with them
- The range of tests available for screening and testing for the common fetal trisomies and the organisation and quality control of the screening service
- Other aneuploidies: the implications of Turner syndrome (45,XO), Klinefelter syndrome (47,XXY) and Triple X syndrome (47,XXX) and appreciate the approach to managing pregnancies complicated by much rarer and unique chromosomal anomalies
- The underlying genetic inheritance patterns and prenatal testing for cystic fibrosis, muscular dystrophy and Fragile X syndrome, and the need for liaison with clinical genetics
- When it is appropriate to offer invasive testing, and when not to
- The role of non-invasive testing
- The implications for the current pregnancy and the long-term prognosis for each condition, and recurrence risks for future pregnancies
- The limitations of ultrasound in detecting and diagnosing congenital anomalies (e.g. cleft palate) or predicting prognosis (e.g. diaphragmatic hernia)
- Triggers and diagnoses that need to be referred to tertiary services
- Diagnostic features of each condition, their differential diagnosis and the chance of associated structural, chromosomal and syndromic associations
- The role of DNA analysis from maternal plasma

PD CiP 3: The doctor demonstrates the skills and attributes required to provide ongoing support and care to people who have had a problem identified with their pregnancy.	
Key skills	**Descriptors**
Counsels on and organises, or refers onwards for, termination of pregnancy for fetal anomaly	• Raises the option of termination of pregnancy for fetal anomaly appropriately and sensitively. • Counsels pregnant person about the different methods of termination, explaining when termination is offered and when feticide is legally mandated. • Organises termination of pregnancy for fetal anomaly (or refers appropriately where there is conscientious objection or the need for tertiary involvement). • Supports the parent journey from diagnosis to follow up with planning for future pregnancies. • Adjusts care around termination of pregnancy in high-risk situations. • Manages complications of termination of pregnancy. • Is aware of and can signpost to appropriate organisations that provide support.
Supports a pregnant person who wants to continue with their pregnancy where the fetus will not survive to birth, or the baby is expected to die in the neonatal period	• Supports and empowers the parent or parents in their decision. • Plans for delivery with the parent or parents and paediatric team to give them the best experience possible in the circumstances, with clarity on intervention and non-intervention in labour. • Plans an appropriate end of life pathway with the family and paediatric team.
Provides follow up and counselling after a pregnancy complicated by fetal anomaly	• Explains the role of the post-mortem and any other relevant post-birth tests (e.g. genetic testing, post-mortem MRI). • Explains the findings and implications of any additional post-birth investigations. • Refers, where appropriate, to the wider MDT, including clinical genetics. • Counsels the parent or parents about the chance of recurrence across the range of conditions targeted by FASP, and arranges genetic counselling where appropriate. • Proposes a plan to manage future pregnancies. • Recognises when tertiary service involvement is appropriate for more complex cases.
Evidence to inform decision	
• Reflective practice • NOTSS • TO2 • CbD	• RCOG Learning • Local and deanery teaching • Attendance at relevant courses and conferences • Attendance at neonatal unit ward rounds

• Mini-CEX	• Log of cases and outcomes • Attendance at fetal medicine clinics • Attendance at MDT meetings • Attendance at specialist neonatal and paediatric clinics • Examples of anonymised birth plans

Knowledge criteria

- The antenatal management, intrapartum care and immediate postnatal management of each condition
- The impact of the diagnosis and individual circumstances on the timing, location and mode of birth
- The local prenatal, birth and post-birth pathways for care of the fetus and newborn with these conditions
- The legal framework under which termination of pregnancy by feticide may be offered
- Recognise which conditions are amenable to prenatal treatment (e.g. diaphragmatic hernia and spina bifida)
- The recurrence risk and management plan for future pregnancies for each condition

SECTION 2: PROCEDURES

The trainee will provide evidence through OSATS of their competency to perform fetal anomaly scans (i.e. they may choose to have an OSAT demonstrating their assessment of a single fetal system, but they should be able to demonstrate that they have knowledge of all the fetal systems to the standard of FASP). Procedures marked with * require three summative competent OSATS.

Procedures	*Level by end of training*	*CIP 1*	*CIP 2*	*CIP 3*
Fetal anomaly scan*	4	X		
Fetal echo*	4	X		
Amniocentesis	1		X	
CVS	1		X	
Therapeutic amniodrainage	1		X	
Feticide	1			X

Subspecialty trainees in Maternal and Fetal Medicine will be expected to acquire the procedural skills listed in this table as well as the subspecialty-specific procedures listed in the MFM subspecialty-specific CiPs table.

SECTION 3: GMC GENERIC PROFESSIONAL CAPABILITIES (GPCs)

Mapping to GPCs
Domain 1: Professional values and behaviours Domain 2: Professional skills

- Practical skills
- Communication and interpersonal skills
- Dealing with complexity and uncertainty

Domain 3: Professional knowledge

- Professional requirements
- National legislative requirements
- The health service and healthcare systems in the four countries

Domain 4: Capabilities in health promotion and illness prevention
Domain 5: Capabilities in leadership and teamworking
Domain 6: Capabilities in patient safety and quality improvement

- Patient safety
- Quality improvement

Domain 7: Capabilities in safeguarding vulnerable groups

SECTION 4: MAPPING OF ASSESSMENTS TO PD CiPs

PD CIP	OSATS	Mini-CEX	CbD	NOTSS	TO1/ TO2	Reflective practice
1: The doctor can use ultrasound to recognise where fetal anatomy is not normal	X	X	X	X	X	X
2: The doctor can assess and investigate a pregnancy where there are concerns about the fetus		X	X	X	X	X
3: The doctor demonstrates the skills and attributes required to provide ongoing support and care to people who have had a problem identified with their pregnancy		X	X	X	X	X