

**Certificate in Clinician Performed Ultrasound
(CCPU)**

Syllabus

Basic Early Pregnancy Ultrasound

Basic Early Pregnancy Ultrasound Syllabus

Purpose:

This unit is designed to cover the theoretical and practical curriculum for Basic Early Pregnancy Ultrasound

Prerequisites:

Learners should have completed the ASUM Physics Image Optimisation unit or accredited equivalent.

Training:

Recognised either through attendance at an ASUM accredited Basic Early Pregnancy course or equivalent.

Assessments:

Learners are required to provide evidence of satisfactory completion of training sessions, supervised ultrasound scans and documentation in a logbook.

Unit Objectives

On completion of the course learners should be able to:

- Demonstrate an understanding of the relevant anatomy and organ systems
- Demonstrate the ability to effectively perform early pregnancy imaging
- Confirm intrauterine pregnancy
- Confirm viability of pregnancy
- Identify and assess pelvic free fluid and clot, bleeding/haemorrhage
- Understand the limitations of ultrasound of organ system in diagnosis of early pregnancy problems
- Write a structured report or complete proforma report for early pregnancy assessment
- Have the clinical knowledge and ultrasound skill to be able to make appropriate management decision according to the clinical situation
- Understand the requirement for urgent formal scan and senior medical input in certain settings

Unit Content

The unit will present learners with the following material:

Anatomy, Physiology and Pathology:

- Vagina
- Cervix
- Endometrium
- Uterus
- Ovaries
- Bladder
- Bowel
- Normal pelvic organ appearance and variations
- Positioning of Uterus:
 - Anteverted
 - Axial
 - Retroverted
- Normal early pregnancy appearance

- Causes of bleeding and pain in early pregnancy
- Sonographic features of ectopic pregnancy
 - Tubal and non-tubal
- Incidence and risk factors for heterotopic pregnancy

Imaging of early pregnancy:

- Pelvic Imaging:
 - Identify pelvic free fluid and clot
- Imaging gestational sac:
 - In 3 planes
 - Definite signs of gestational sac (yolk sac, foetal pole)
 - Calculating gestation and estimating gestational age by measuring CRL
 - Imaging and measuring foetal heart rate using M-mode
- Able to write a structured report or complete proforma report for early pregnancy assessment
- Sonographic signs of non-viable pregnancy
- Sonographic signs of intra-abdominal bleeding
- Sonographic mimics of a gestational sac
 - Pseudosac
 - Nabothian cyst
 - Sub endometrial cysts
- Sonographic signs of abnormal implantation
 - Cornual, scar and cervical ectopics
- Relation of ultrasound findings to threatened miscarriage, non-viable pregnancy and ectopic pregnancy
- Management of patients with pain and bleeding in early pregnancy
- Writing a structured report or complete proforma report for early pregnancy assessment

Techniques, Physical Principles and Safety

Appropriate transducers, artifacts, windows, standard images, image optimisation and safety in the context of an early pregnancy scan

Limitations and Pitfalls

- Understand the limitations of trans abdominal pelvic ultrasound in diagnosis of early pregnancy problems.
 - If there is any uncertainty about diagnosis a timely TV scan should be scheduled.
- Requirement for urgent formal scan and senior medical input in the settings of:
 - Haemodynamic instability
 - Severe pain
 - Moderate to large pelvic free fluid
 - IVF
- Misinterpretation of other cystic structures as gestational sac

Teaching Methodologies

All units accredited toward the CCPU will be conducted in the following manner:

- A pre-test shall be conducted at the commencement of the course which focuses learners on the main learning points

- Each course shall comprise at least 3 hours of teaching time of which at least 1 hour shall be practical teaching. Stated times do not include the physics, artefacts and basic image optimization which should be provided if delegates are new to ultrasound
- Learners will receive reference material covering the course curriculum.
- The lectures presented should cover substantially the same material as the ones printed in this curriculum document.
- An appropriately qualified clinician will be involved the development and delivery of the course (they do not need to be present for the full duration of the course).
- The live scanning sessions for this unit shall include sufficient live patient models to ensure that each candidate has the opportunity to scan (maximal candidate: tutor / machine ratio of 5:1). Models will include normal subjects and patients with appropriate pathologies. Given that it may be difficult to find subjects with pathology, it is appropriate to include a practical 'image interpretation' session in which candidates must interpret images of the relevant pathology.
- A post-test will be conducted at the end of the course as formative assessment.

Assessment and Logbook

- Evidence of satisfactory completion of training sessions
- Evidence of assessment of competence (summative assessment) signed off by a suitably qualified assessor (DDU, Radiologist, DMU or AMS or sonographer registered with NZ MRTB in the relevant field, CCPU in the relevant field or other qualification as approved by the CCPU board). The original completed competence assessment form is to be sent to ASUM with the candidate's completed log book.
- Logbook requirements need to be completed, and logbooks need to be submitted within two years of completing a course.

Formative Assessments

- 2 formative assessments (directly supervised with suggestions and advice provided during the scan)

Summative Assessment

- Summative assessment is to be performed by a suitably qualified assessor (see above) using the pro forma supplied at the end of this document (or equivalent if deemed sufficient by ASUM at their discretion). The original completed assessment is to be sent to ASUM with the candidate's completed log book.

Logbook Requirements

- Complete 25 examinations within 2 years of completing a course, at least 50% clinically indicated.
- At least 10 cases of Intrauterine pregnancy
- At least 5 cases of viable intrauterine pregnancy (demonstrated by a fetal heart beat)
- At least 3 abnormal cases (e.g. Pelvic free fluid, intra uterine death, ectopic, etc.)
- All cases must be compared with gold standards findings (such as comprehensive imaging, pathological findings or if these are unavailable then clinical course).
- All cases are to be reviewed and signed off by a suitably qualified supervisor (DDU, Radiologist, DMU or AMS or sonographer registered with NZ MRTB in the relevant field, CCPU in the relevant field or other qualification as approved by the CCPU board).
- Those cases that involve a procedural component must be signed off by a suitable assessor

who performs those procedures themselves.

Minimal Imaging Sets

The following are proposed as minimal imaging sets for focused ultrasound examinations for the CCPU units. It is understood that in many cases more images should be recorded to fully demonstrate the abnormality. In some cases the patient's condition will not allow the full set to be obtained (e.g. in an unstable patient), in which case the clinician should record whatever images are obtainable during the time available to adequately answer the clinical question without allowing the ultrasound examination to interfere with ongoing medical treatment. If local protocols recommend more images for a particular examination then these should be adhered to.

- Uterus longitudinal (full length of uterus including cervix and vaginal stripe with Pouch of Douglas included in image)
- Uterus transverse.
- If intrauterine sac present then reduced depth or zoomed image of sac (+/- CRL measurement and either M mode or cineloop of heart beat if present). *NB Pulse wave Doppler should not be used for FHR*
- If free fluid is present then images of this, including images of the upper quadrants, may be taken to demonstrate the amount of free fluid.

**ASUM CCPU Competence Assessment Form
Basic Early Pregnancy**

Candidate: _____

Assessor: _____

Date: _____

Assessment type: Formative (feedback & teaching given during assessment for education)
 Summative (prompting allowed but teaching not given during assessment)

To pass the summative assessment, the candidate must pass all components listed

		Competent	Prompted	Fail
Prepare patient				
	Position			
	Informed			
Prepare Environment				
	Lights dimmed if possible			
Prepare Machine				
	Correct position			
Probe & Preset Selection				
	Can change transducer			
	Selects appropriate transducer			
	Selects appropriate preset			
Data Entry				
	Enter patient details			
Image Acquisition				
	Optimisation (depth, freq, focus, gain)			
Transabdominal Scan				
	Longitudinal view			
<i>Technique</i>	Tilts probe down into pelvis			
	Fans through pelvis from side to side			
<i>Identifies</i>	Uterus in LS			
	Position of uterus			
	Endometrium			
	Cervix			
	Vagina			
	Bowel			
	Bladder			
	Free fluid / where free fluid would collect			
	Ovaries (if seen, not essential)			
If IUP Present		Competent	Prompted	Fail
<i>Identifies</i>	Sac (ideally can measure in 3 planes)			
	Describe typical features of sac			
	<i>Rounded, echogenic rim, intradecidual</i>			
	Yolk sac			
	Foetal pole			

Ideally can measure CRL
 Can demonstrate FHR
 Ideally can measure FHR with M-mode
 Use Preformatted Report to date gestation

Transverse View

Technique Fans up and down through pelvis

Competent Prompted Fail

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Identifies Uterus
 Endometrium
 Cervix
 Vagina
 Bladder
 Bowel
 Free fluid / or where it would collect
 Ovaries (if seen, not essential)

Artefacts

Identifies & explains the basis of common artefacts

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Record Keeping

Labels & stores appropriate images
 Documents any pathology identified
 Completes report
Each view adequate / inadequate
Documents focussed scan only
Describe findings briefly
Integrates ultrasound findings with clinical assessment and explains how the findings might change management

Machine Maintenance

Cleans / disinfects ultrasound probe
 Stores machine and probes safely and correctly

For Formative Assessment Only:

Feedback of particularly good areas: _____

Agreed actions for development _____

Examiner Signature: _____ Candidate Signature: _____

Examiner Name: _____ Candidate Name: _____

Date: _____