

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

Advanced Early Pregnancy

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Advanced Early Pregnancy Syllabus

Purpose

This unit is designed to cover the theoretical and practical curriculum for advanced early pregnancy ultrasound.

Prerequisites

Learners should have completed the Applied Physics in Ultrasound unit.

Unit Objectives

On completing this unit learners should be able to demonstrate:

- Effective performance and interpretation of anatomical structure of the female pelvis, and cyclic changes observed during reproductive life.
- Attain proficiency in image optimisation of the following in order to enable appropriate diagnosis:
 - Cervix
 - Uterus
 - Fallopian tube (often not visible on ultrasound unless abnormal)
 - Ovaries
 - Endometrium
 - Gestational sac
 - Fetus
 - Placenta
 - Normal versus abnormal appearances in first trimester, e.g. Molar pregnancy.
- Diagnose an early intrauterine pregnancy and be able to establish its gestational age
- Determine whether or not an early pregnancy is viable
- Write a structured report or complete proforma report for early pregnancy assessment

Course Content

The course will present learners with the following material:

Anatomy and Pathology:

- Relational anatomy of adjacent organs and structures (uterus and ovaries)
- Recognise uterine position
 - Anteverted/retroverted
- Recognise uterine malformations
 - Bicornuate, subseptate etc
- Recognise and correctly measure the endometrium (proliferative versus secretory versus early intra uterine pregnancy).

Imaging of early pregnancy:

- Ovarian follicular development
- Recognise a corpus luteum
- Pelvic Imaging:
 - Identify pelvic free fluid and clot
- Imaging gestational sac:

- In 3 planes
- Definite signs of gestational sac (yolk sac, foetal pole)
- First trimester biometry – Calculating and estimating gestational age
 - CRL from 5-14 weeks, and HC and BPD after 11 weeks.
- Imaging and measuring foetal heart rate using M-mode
- Sonographic signs of non-viable pregnancy
- Sonographic mimics of a gestational sac:
 - Pseudosac
 - Nabothian cyst
 - Subendometrial cysts
- Recognise and locate an extra-membranous haemorrhage
- Sonographic signs of intra-abdominal bleeding
- 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
- Know the ASUM criteria for early pregnancy failure www.asum.com.au [Standards of Practice: Policy D11 'Guidelines for the Performance of First Trimester Ultrasound'](#)
- Perform a TA and TV assessment of the pelvis/pregnancy
- Writing a structured report or complete proforma report for early pregnancy assessment

Ectopic Pregnancy – Basic Principles:

- Intrauterine appearances seen in ectopic pregnancy
- Extrauterine appearances in ectopic pregnancy
- Presence of free fluid

Techniques, Physical Principles and Safety:

Appropriate transducers, artifacts, windows, standard images, image optimisation in the context of an obstetric scan

Limitations and Pitfalls

- Assessment of extrauterine pathology
- Biometric assessment on limited case numbers

Training:

- Recognised through attendance at an ASUM accredited advanced early pregnancy course. (Please see the website for accredited providers)
- Evidence of the satisfactory completion of training course is required for unit award.

Teaching Methodologies for the Advanced Early Pregnancy courses

All courses 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 four (4) hours of teaching time of which at least two (2) hours 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 sufficient 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.

Assessments

- Two (2) formative assessments of clinical skills, specifically related to the assessment of advanced early pregnancy
- One (1) summative assessment of clinical skills, specifically related to the assessment of advanced early pregnancy

All assessments are to be performed under the supervision of the Primary Clinical Supervisor using the competence assessment form supplied at the end of this document.

Logbook Requirements

- Fifty (50) advanced early pregnancy scans, including:
 - Twenty (20) IUP showing either CRL measurement, m-mode trace with FHR, gestational sac, yolk sac. May be transabdominal or transvaginal.
 - Fifteen (15) TV scans (minimum) – may include normal and abnormal findings.
 - Fifteen (15) adnexal scans showing adnexal anatomy/pathology (examples include free fluid, ovarian follicles/cysts, corpus luteal cysts, haemorrhagic cysts, tubal pathology, etc.). May be transabdominal or transvaginal.
- All scans must be clinically indicated
- All cases must be compared with gold standard findings (such as comprehensive imaging, pathological findings or if these are unavailable then clinical course)
- All logbook cases must be signed off by a suitably qualified supervisor (see section 6 of the CCPU Regulations)
- At the discretion of the ASUM CCPU Certification Board candidates may be allowed an alternative mechanism to meet this practical requirement

Please note: All assessments and logbooks are required to be completed by the Primary Clinical supervisor as outlined in the CCPU regulations.

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 sagittal (full length 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
- Where an embryo is present CRL measurement and M mode or cineloop of heart beat (if present) should be recorded
- Where there is no CRL identified, the GS should be imaged in two planes and the mean GS diameter (of length, breadth and width measurements) recorded.
- Such images should also demonstrate a yolk sac if present.
- Transverse and sagittal images of the right and left ovaries (if identified) and / or adnexa.
- If free fluid is present then images of this as well as the right or left upper quadrant should be taken to demonstrate the amount of free fluid.

ASUM CCPU Competence Assessment Form Advanced Early Pregnancy Ultrasound

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

Prepare patient

Position

Informed

Competent Prompted Fail

Prepare Environment

Lights dimmed if possible

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Probe & Preset Selection

Can change transducer

Selects appropriate transducer

Selects appropriate preset

Data Entry

Enter patient details

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Image Optimisation

Depth

Frequency

Focus (if required)

Gain/TGC

Transabdominal Scan

Longitudinal view

Technique

Tilts probe down into pelvis

Fans through pelvis from side to side

Identifies

Uterus in LS

Position of uterus

Endometrium

Cervix

Vagina

Bladder

Bowel

Free fluid / where free fluid would collect

Ovaries (if seen, not essential)

If IUP Present

Identifies

Sac (ideally can measure in 3 planes)
 Describe typical features of sac
Rounded, echogenic rim, intradecidual
 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

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Identifies

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

Transvaginal Scan**Patient Preparation**

Ensures patient comfort & understanding
 Empty bladder required
 Patient appropriately positioned
 Ensure minimal but adequate patient exposure
 Female chaperone in attendance if male examiner

Competent Prompted Fail

Machine Preparation

Correct position of patient and machine
 Can change probe
 Covers with condom and lubricates probe
 Aware latex free condoms are available
 Uses correct preset

Image Optimisation

Depth
 Frequency
 Focus (if required)
 Gain/TGC

Longitudinal View

Technique

Gentle Insertion
(may give patient option of inserting themselves)
 Finds uterus in LS
 Fans across uterus to explore endometrium
 Moves up and down to explore uterus/cervix

Identifies

Uterus in LS
 Position of uterus
 Endometrium
 Cervix
 Vagina
 Bowel
 Bladder
 Free fluid/or where it would collect
 Ovaries (if seen, not essential)

Transverse Views

Technique Fans up and down through uterus

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)

If IUP Present

Identifies

Sac (ideally can measure in 3 planes)
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 Ideally can measure FHR with M-Mode
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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 & explains how the findings might change management

Competent Prompted Fail

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: _____