

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

**Proximal Deep Vein Thrombosis
(DVT)**

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Deep Vein Thrombosis (DVT) Syllabus

Purpose

This unit is designed to cover the theoretical and practical curriculum for Proximal Deep Vein Thrombosis (DVT) ultrasound.

Prerequisites

Learners should have completed the Applied Physics in Ultrasound unit.

Course Objectives

On completing this course learners should be able to:

- Demonstrate detailed understanding of the relevant anatomy
- Demonstrate knowledge of ultrasound techniques associated with DVT
- Attain proficiency in ultrasound image optimisation in order to enable appropriate diagnosis
- Understand the limitations of proximal DVT ultrasound

Course Content

The course will present learners with the following material:

Anatomy and anatomical relationships to adjacent structures and surface anatomy:

- IVC
- External iliac vein
- Greater saphenous vein
- Common femoral vein
- Femoral vein (and understand the importance of NOT using the incorrect term “superficial femoral vein”)
- Deep femoral vein
- Popliteal vein

Techniques, physical principles and safety:

Patient positioning:

- Supine with leg externally rotated & abducted
- Decubitus or prone for popliteal fossa
- Seated or standing if difficult to see veins

Techniques to improve visualisation:

- Valsalva manoeuvre
- Flow augmentation
- Reverse Trendelenburg positioning
- Curved probe in the obese patient

Imaging:

The above veins in transverse and longitudinal planes using:

- B-mode compression ultrasound

- Pulsed wave Doppler ultrasound
- Colour Doppler ultrasound

Diagnostic Criteria:

Recognise normal anatomy and the sonographic appearance of DVT, including:

- Echogenic material within vein lumen
- Incompressible vein
- Absence of blood flow

Measurements and Artefacts

Limitations and Pitfalls:

- Patient body habitus
- Variable anatomy e.g. duplex veins
- Chronic DVT
- Partially occluding thrombus
- More distal or isolated pelvic vein thrombus

Training

- Recognised through attendance at an ASUM accredited Proximal DVT 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 Proximal DVT 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 two (2) hours of teaching time of which at least one (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.
- Clinical algorithms for low, intermediate and high risk patients should be discussed.
- 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. 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 to ensure the required learning objectives are met.

Assessments

- Two (2) formative assessments of clinical skills, specifically related to the assessment of proximal DVT
- One (1) summative assessment of clinical skills, specifically related to the assessment of proximal DVT

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

Please refer to section 8 of the [CCPU Regulations](#) for information regarding timing and exclusion of these assessments in the logbook.

Logbook Requirements

- Fifteen (15) Proximal DVT scans, including two (2) positives (demonstrating the above pathology)
- All logbook cases must be signed off by a suitably qualified supervisor (see section 6.0 of the [CCPU Regulations](#))
- The 'Comparison with Further Imaging or Clinical Outcome' column should describe the further imaging or the final outcome of the patient. In this column, candidates must compare at least **50% of their logbook findings to further imaging**, this includes stating the imaging method and commenting on whether the further imaging confirmed, contradicted, or expanded on their findings
- Up to 50% of scans can be non-clinically indicated.
- All logbook scans must be real-time scans.
- Scans conducted on simulators cannot be included in the logbook
- 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.

- External iliac vein - colour Doppler
- External iliac Vein - pulsed Doppler demonstrating respiratory variation and augmentation (abnormality of spectral Doppler should prompt examination of iliac veins and IVC).
- Grey scale images or loops demonstrating compression of
 - common femoral vein
 - saphenofemoral junction
 - proximal femoral and deep femoral vein
 - mid and distal femoral vein
 - proximal and distal popliteal vein

**ASUM CCPU Competence Formative Assessment Form
Proximal DVT Ultrasound**

Candidate: _____

Assessor: _____

Date: _____

Assessment type: Formative 1 (feedback & teaching given during assessment for education)
 Formative 2 feedback & teaching given during assessment for education)

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

		Competent	Prompted	Fail
Prepare patient	Position			
	Informed			
Prepare Environment				
	Prepares equipment			
Probe & Preset Selection				
	Can change transducer			
	Selects appropriate transducer			
	Selects appropriate preset			
Data Entry				
	Enter patient details			
Image Acquisition				
	Optimisation (depth, freq, focus, gain)			
<i>Identifies</i>	Deep veins from external iliacs to popliteal veins			
	Venous anatomy			
	Other relevant anatomy			
Grey Scale Images or Loops				
<i>Demonstrates</i>	Compression of common femoral vein			
	Saphenofermoral junction			
	Proximal femoral			
	Deep femoral vein			
	Mid & distal femoral vein			
	Proximal & distal popliteal vein			
Performs dynamic testing				
	Uses B Mode compression appropriately			
	Uses Colour Doppler appropriately			
	Uses pulsed wave Doppler appropriately			
Knowledge and Understanding				
	Understands sonographic appearance of DVT			
	Explains limitations and role of Proximal US in DVT assessment			

Artifacts

Identifies & explains the basis of common artefacts

Competent	Prompted	Fail

Record Keeping

Labels & stores appropriate images
Documents any pathology identified
Completes report

*Describe findings briefly
Integrates ultrasound findings with clinical assessment and explains how the findings might change management*

Machine Maintenance

Cleans / disinfects 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: _____

ASUM CCPU Competence Summative Assessment Form
Proximal DVT Ultrasound

Candidate: _____

Assessor: _____

Date: _____

Assessment type: 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				
	Prepares equipment			
Probe & Preset Selection				
	Can change transducer			
	Selects appropriate transducer			
	Selects appropriate preset			
Data Entry				
	Enter patient details			
Image Acquisition				
<i>Identifies</i>	Optimisation (depth, freq, focus, gain)			
	Deep veins from external iliacs to popliteal veins			
	Venous anatomy			
	Other relevant anatomy			
Grey Scale Images or Loops				
<i>Demonstrates</i>	Compression of common femoral vein			
	Saphenofermoral junction			
	Proximal femoral			
	Deep femoral vein			
	Mid & distal femoral vein			
	Proximal & distal popliteal vein			
Performs dynamic testing				
	Uses B Mode compression appropriately			
	Uses Colour Doppler appropriately			
	Uses pulsed wave Doppler appropriately			
Knowledge and Understanding				
	Understands sonographic appearance of DVT			
	Explains limitations and role of Proximal US in DVT assessment			
Artifacts		Competent	Prompted	Fail
	Identifies & explains the basis of common artefacts			

Record Keeping

Labels & stores appropriate images
Documents any pathology identified
Completes report

*Describe findings briefly
Integrates ultrasound findings with clinical
assessment and explains how the findings
might change management*

Machine Maintenance

Cleans / disinfects probe
Stores machine and probes safely and correctly

Supervisor Declaration

I, _____ (supervisor name) confirm the complete competency of _____ (candidate name) after concluding the Summative assessment on _____ (Date).

- Yes
- No

Supervisor signature