

**Certificate in Clinician Performed Ultrasound
(CCPU)
Syllabus

Biliary**

Disclaimer and Copyright: Content within this curriculum was accurate at the time of publication. This curriculum is subject to Australian copyright law. Apart from any use as permitted by law, no part of this curriculum may be copied, adapted, reproduced or distributed without written permission from The Australasian Society for Ultrasound in Medicine (ASUM). All enquires to be directed to education@asum.com.au.

Biliary Syllabus

Purpose

This unit is designed to cover the theoretical and practical curriculum for basic ultrasound of the biliary system.

Prerequisites

Learners should have completed the Applied Physics in Ultrasound unit.

Course Objectives

On completing this course learners should be able to demonstrate:

- Demonstrate a detailed understanding of the gross anatomical structure and surface anatomy of the relevant organ systems and the anatomical relationship to surrounding organs and structures.
- Attain proficiency in image optimisation in order to enable appropriate diagnosis.
- Optimisation of colour and spectral Doppler
- Limitations of colour Doppler
- Identify abnormal gallbladder wall
- Identify gallstones
- Identify obstructed biliary tree

Course Content

The course will present learners with the following material:

Anatomy:

- Gallbladder
 - Phrygian cap junctional fold
 - Location beneath the interlobular fissure
 - Rare intrahepatic gallbladders
 - Normal Measurements
 - Common bile duct

Imaging:

- Imaging the liver to demonstrate intrahepatic ducts
- Imaging the gallbladder showing maximum dimensions in 2 planes and gallbladder wall thickness
 - ensuring gallbladder neck is demonstrated
 - If stones present demonstrate mobility by repositioning patient
- Imaging and accurately measuring the common bile duct and using Doppler to distinguish from portal vein and hepatic artery

Pathology:

- Characteristics of Stones, Sludge and Polyps
- Diagnostic criteria of acute cholecystitis (including acalculous cholecystitis)
- Causes of thickened gallbladder wall other than acute cholecystitis
- Chronic cholecystitis
- Intra and extra hepatic duct dilation and their causes and relation to biliary obstruction

Limitations and Pitfalls:

Understand the limitations of ultrasound of the biliary system.

Training

- Recognised through attendance at an ASUM accredited Biliary 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 Biliary courses

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 four (4) hours of teaching time of which at least two (2) hours shall be practical teaching. Stated times do not include the physics, artifacts 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. 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 the biliary system
- One (1) summative assessment of clinical skills, specifically related to the assessment of the biliary system

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.

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

Logbook Requirements

- Twenty-five (25) biliary scans, including:
 - At least five (5) scans that demonstrate gallstones
 - At least two (2) scans that demonstrate Common Bile Duct dilation
 - At least 50% of cases should show the Common Bile Duct

- A maximum of 50% paediatric cases (14 years and under) may be included in the logbook. Record in the column provided.
- 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

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. basic echo during CPR or positive free fluid in an unstable trauma 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.

- Subcostal or intercostal view of liver (for intrahepatic duct dilation)
- Gallbladder longitudinal (including neck of GB)
- Transverse fundus
- Transverse body (include wall thickness measurement)
- CBD with measurement (inner wall to inner wall) and Doppler (to demonstrate non-vascularity)

ASUM CCPU Competence Assessment Form

Biliary 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

--	--	--

Probe & Preset Selection

Can change transducer

Selects appropriate transducer

Selects appropriate preset

Data Entry

Enter patient details

--	--	--

Image Acquisition

Optimisation (depth, freq, focus, gain)

--	--	--

Identifies **Liver**

Portal vein branches

Hepatic veins

Diaphragm

IVC

Hepatorenal space

Biliary system

Gall bladder

Extra hepatic ducts

Intra hepatic ducts

Wall thickness

Describes Appearance of Biliary calculi
 Appearance of peri-cholecystic fluid
 Clinical sign of Sonographic Murphy's
 Appearance of dilated bile ducts

Identifies & explains the basis of common artefacts

--	--	--

Record Keeping

Labels & stores appropriate images

Documents any pathology identified

Completes report

Competent	Prompted	Fail
-----------	----------	------

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: _____