

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

**Syllabus**

**Biliary**

## 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 ASUM Physics Image Optimisation unit or accredited equivalent.

### Training:

Recognised either through attendance at an ASUM accredited Biliary 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 completing this unit learners should be able to:

- 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

### Unit Content

The unit 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.

## **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 4 hours of teaching time of which at least 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 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 by 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 competence assessment form supplied at the end of this document (or equivalent if deemed sufficient by ASUM at their discretion).

### **Logbook Requirements**

- Logbook requirements need to be completed, and logbooks need to be submitted within two years of completing an accredited course.
- Complete 25 examinations within 2 years of completing a course:
- At least 50% of cases should show the Common Bile Duct. At least 5 scans should demonstrate gallstones, and 2 should demonstrate Common Bile Duct dilation. All cases must be compared with gold standard findings (such as comprehensive imaging, pathological findings or if these are unavailable then clinical course). These should be documented with electronic or hard copy of relevant images.
- Evidence of completion of logbook signed off by a suitably qualified supervisor (DDU, Radiologist, DMU or AMS or sonographer registered by NZ MRTB in the relevant field, CCPU in the relevant field or other qualification as approved by the CCPU Board).
- At the discretion of the ASUM CCPU Certification Board candidates may be allowed an alternative mechanism to meet this practical requirement.
- 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. 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

	Competent	Prompted	Fail
<b>Prepare patient</b>			
Position			
Informed			
<b>Prepare Environment</b>			
Lights dimmed if possible			
<b>Probe &amp; Preset Selection</b>			
Can change transducer			
Selects appropriate transducer			
Selects appropriate preset			
<b>Data Entry</b>			
Enter patient details			
<b>Image Acquisition</b>			
Optimisation (depth, freq, focus, gain)			
<i>Identifies</i> <b>Liver</b>			
Portal vein branches			
Hepatic veins			
Diaphragm			
IVC			
Hepatorenal space			
<b>Biliary system</b>			
Gall bladder			
Extra hepatic ducts			
Intra hepatic ducts			
Wall thickness			
<i>Describes</i> 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 

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**Record Keeping**

Labels & stores appropriate images 

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 Documents any pathology identified 

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Completes report 

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*Each view adequate / inadequate*

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*Documents focussed scan only*

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*Describe findings briefly*

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

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**Machine Maintenance**

	Competent	Prompted	Fail
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: \_\_\_\_\_