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As part of the RCR Level 1 ultrasound programme, the clinical competency element(s) is fundamental in achieving safe practice and is a requirement for accreditation by the Consortium for Accreditation of Sonographers Education (CASE). In order to satisfy the assessed elements of the core unit, Competency in Clinical Practice, students must submit a clinical workplace agreement form at the time of application. This form will be sent to the applicant, who will ensure it is completed to the satisfaction of the course leader. This form ensures that the student has the opportunity to fulfil the clinical requirements of the course in his/her workplace. It is the responsibility of the student and not the SMU, AECC University College to ensure that these opportunities are both available and sufficient to meet the requirements of the course. In cases where supervised training is not feasible then SMU will endeavour to provide master classes run at Bournemouth to encourage safe practice and help in the achievement of competency.
Clinical Placement Agreement Form

Name and Address of the Department:

Tel No:

Email:

Fax:

Name of Student: .............................................................

Name of Clinical Practice Educator/Mentor:

1. Designated Practice Educator: ..............................................

   *Qualifications/Accreditation: ...................................................

   State Ultrasound qualification ..................................................

   *Professional Regulatory Body (HCPC/SOR/MDU/Others please specify): .................................................................

2. Deputy Practice Educator: .....................................................

   *Qualifications/Accreditation: ...................................................

   State Ultrasound qualification ..................................................

   *Professional Regulatory Body (HCPC/SOR/MDU/Others please specify): .................................................................

It is agreed that the Department will provide the relevant clinical training in the following selected application(s):

Please indicate:

1. Musculoskeletal Ultrasound (Level I) [ ]

*Please provide details of qualifications and if you have CASE/RCR/RCOG or any other accredited training. *Please provide details of your Indemnity and medico-legal insurance
cover; this will insure that you, the student and the SMU, AECC University College are adequately covered.
It is agreed that the Department will supervise the student in completing the following clinical portfolio:

1. A record of clinical practice (a minimum of 150 cases of which 25% are completed with minimal supervision)

2. 120 hours of practical work (a minimum of 50 hours must be mentored)

3. 1 long case study (pathologies) for each of modules 2, 3 and 4 (1250 words each)

4. Prepare the student for the clinical assessment carried out by members of the SMU teaching faculty

Departmental Status:

1. NHS site

   Hospital Ultrasound Department:

   ………………………………………………………………………………………………………

   Community based Ultrasound Service (e.g. GP surgery/Medical Centre):

   ………………………………………………………………………………………………………

2. Independent/Private site

   Private Ultrasound Service (e.g. Chiropractic /Physiotherapy Clinic):

   ………………………………………………………………………………………………………
**Departmental Resources:**
Please provide the following information about your department:

1. Type(s) of ultrasound machine(s) and transducers/probes available for clinical practice (include make, model, age of equipment)

............................................................
............................................................
............................................................
............................................................

2. The ultrasound equipment is fit for purpose? YES NO

Is a QA programme in place? YES NO

Please give brief details to ensure the student can get adequate experience of ultrasound QA:

............................................................
............................................................
............................................................
............................................................
............................................................

3. Patient throughput (workload for the year)

Musculoskeletal Ultrasound:

  Upper Limb ............... 
  Lower Limb ...............
Clinical Placement

It is imperative that prior to registration onto the course the clinical placement has been recognised as satisfactory by the programme leader according to the set criteria. The student is expected to train in a safe environment which provides opportunities for good quality supervised ultrasound training in the relevant ultrasound application(s). The clinical placement must provide student access to a good case-mix of patients in regular planned ultrasound clinics using high-resolution ultrasound equipment. Learning resources should also include library facilities, computers and internet access to encourage students to carry out academic and research activities for the successful completion of their course work.

Criteria:

a) Recognised provider of ultrasound services to the NHS/Other recognised health provider/Private patients
b) Good annual turn-over of patients in the relevant ultrasound application to satisfy the requirement of the programme clinical assessment portfolio
c) Good case-mix of patients in the relevant ultrasound application to satisfy the requirement of the programme clinical assessment portfolio
d) Good standard of ultrasound equipment to satisfy the requirement of the programme clinical assessment portfolio
e) An active Quality Assurance (QA) programme in situ to satisfy the requirement of the programme clinical assessment portfolio
f) Adequate number of qualified ultrasound staff in relevant ultrasound application(s) to provide satisfactory clinical ultrasound supervision to the student(s)
g) Nominated Practice Educator(s) must have recognised qualifications or status in the relevant ultrasound application to provide satisfactory mentorship to the student to satisfy the requirement of the programme clinical assessment portfolio
h) A generic good ethos towards educational and training needs of student(s)
i) Learning resources should also include library facilities, computers and internet access to encourage students to carry out academic and research activities for the successful completion of their course work.
Agreement:

It is agreed that the student……………………………………………….. will be provided with the resources and supervision necessary to fulfil the clinical work-place requirements of the programme.

Signature of Head of the
Department/Institution:…………………………………………………………

Date:…………………………

Departmental stamp:

Signature of the Course Leader:

………………………………………………………………………………………

Warren Foster

Date:…………………………
The Record of Clinical Practice
The Record of Clinical Practice

Student Name: ___________________________________

Clinical Practice Educator: _________________________

This record is useful to review student experience, workload and case mix. Students should record all examinations they have performed even if the number exceeds 150. The Practice Educator should review this regularly so that if there are any deficiencies in experience these can be identified and targeted training arranged.

This record should demonstrate progression of skills from level 3 – high level of supervision to level 1 – minimal supervision required. Once a student is consistently achieving minimal supervision (level 1) the Practice Educator may consider the student’s suitability for assessment of competency in the subject specific area/unit.

Criteria

1. A minimum of 150 examinations across a case mix MUST be recorded with a minimum of 25% to be unaided or minimal supervision at level 1, Practice Educator must be present). Students must complete a minimum of 120 hours of practical work (50 hours must be mentored).

2. A minimum of 25% of the examinations MUST demonstrate variety of pathologies in all of the following shoulder, elbow, wrist, knee, ankle and foot.

3. Each ultrasound examination must include details of:
   - study number (No patient identification is to be included, absolute anonymity required)
   - date when the ultrasound examination was performed
   - reason for examination request (e.g. Rotator Cuff Tear)
   - level of supervision (scale 1/2/3: 1 = minimal, 2 = medium and 3 = high)
   - verified by the Practice Educator

4. The completed Record of Clinical Practice must be submitted to the course leader on the day of the final competency assessment.
<table>
<thead>
<tr>
<th>Study No</th>
<th>Date</th>
<th>Reason for Examination Request (if present please indicate any pathology demonstrated)</th>
<th>Aided</th>
<th>Unaided</th>
<th>Level of Supervision</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>1-minimal supervision</td>
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<td>2-medium supervision</td>
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<td>3-high level of supervision</td>
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<td>Hours</td>
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<td>Practice Educator’s Signature</td>
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</table>
Record of Clinical Practice: Section A

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<tr>
<th>Study No</th>
<th>Date</th>
<th>Reason for Examination Request (if present please indicate any pathology demonstrated)</th>
<th>Aided</th>
<th>Unaided</th>
<th>Level of Supervision</th>
<th>Hours</th>
<th>Practice Educator’s Signature</th>
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</thead>
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<td></td>
<td>1-minimal supervision</td>
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<td>2-medium supervision</td>
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<td></td>
<td></td>
<td></td>
<td>3-high supervision</td>
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</tbody>
</table>

Please photocopy/print additional pages as necessary.
Progress Report

STUDENT NAME: ______________________________________

(to be completed by the student and practice educator monthly. Student must submit this report to the course leader (together with a photocopy of the logbook pages completed to-date).

Student: Please reflect and comment on your training during this academic period in terms of supervised work, case mix, level of competency achieved and your progression.

Practice educator: Please comment on your student’s training during this term. If you feel that the student may benefit in any way to enhance areas of concerns please note comment and contact the programme leader.

Practice educator: Results and feedback from any mock assessments (if applicable). Please submit completed assessment form(s).
Record of Clinical Practice Completion Page (please submit with your record of clinical practice pages)

Signature of Practice Educator: ………………………………………………………………

Note to Practice Educator: Once the student is consistently achieving minimal supervision (Level 1) the Practice Educator may consider the student’s suitability for assessment of competency in the subject specific area/unit.

Date record of clinical practice submitted to course leader: …………………..

Signature of student: ………………………………………………………………

Signature of course leader: ………………………………………………………………
Warren Foster
Case Study Guidelines

The purpose of case studies is to have a much deeper knowledge and understanding of the processes involved in making an accurate diagnosis based on evidence-based practice. Students will also improve their critical reflective writing skills. Some students may progress to the stage of publishing their work.

Criteria

1. One pathological case study (1250 words for each of modules 2-4) to show different clinical presentations and resultant pathologies (example: shoulder tendon tear/ pre-patellar bursa of the knee). These topics are not prescriptive and students should choose the case based upon that which he/she feels will best be able to show safe practice.

Students will be informed about the nature and format of these case studies in the two day seminar.

Students will be expected to include ultrasound images of the examinations carried out in their clinical practice. Images may be submitted as hard copy, on CD or in e-format. The number of images will depend on the examination performed and the resultant pathology. The images accompanying the case study should be of the highest quality and conform with safe practice and must optimally display the pathology reported (see Protocol)*. Complementary images (e.g. CT/MRI) should be included where relevant.

2. Students are advised that in all cases they must provide written evidence of informed consent (appendix 1) to publish both information and ultrasound images for purposes of a case study. The patient should be informed that all information/images will be anonymised and that refusal to give informed consent will not, in any way, affect their care. He/she can retract their consent at anytime without detriment to their care.

Format

The following guidelines are intended to aid in the completion of the case studies. These guidelines are not extensive or constraining and students have the autonomy to provide any relevant information which may enhance the case-study.

- Evaluate critically the type of ultrasound examination and clinical indications for justification of the ultrasound examination using current evidence base for safe practice
- Evaluate and justify critically the choice of ultrasound equipment and contrast media for safe use using current evidence-based practice
- Evaluate critically the ultrasound examination technique used together using current evidence base for safe practice
- Reflect and evaluate critically the appropriateness of the examination
- Evaluate critically the ultrasound findings, interpretation and diagnosis of the ultrasound examination
- Evaluate critically the report writing skills and effective communication of results to the patient and referring clinician
- Role of any further complementary examinations/investigations and their value using evidence-based practice
- Evaluate critically the impact of Ultrasound on the management of the patient and subsequent care pathway
- Record and retrieve diagnostic ultrasound images
- Must include references/bibliography to ensure sound evidence base for the report

In compiling the case studies the following sections must be included:

1. **Study Details**

   This must include details of initial patient presentation and clinical history. The minimum requirement for this section is information relating to patient age, sex, presenting complaint, clinical history, previous imaging and clinical investigations (i.e. blood tests) and preliminary diagnosis. This should lead to the appropriateness of the ultrasound technique chosen based on available evidence-based practice. An outline/critique of the protocol against the evidence base of the ultrasound protocol should be included as an appendix and may include: outline of protocol, patient preparation, patient positioning, ultrasound equipment selection and control, use of contrast agents, and aspects of safety.

2. **Clinical Decision Process**

   This section allows you to evaluate your ultrasound findings based on the report of the outcome of the examination and your own background reading relating to the clinical aspects of the particular patient. Fully document the explanation for the image detail demonstrated.

3. **Clinical Management**

   This section should outline if any complementary examinations/investigations are required to make a complete diagnosis. You will be expected to evaluate critically the contribution of ultrasound imaging in the overall management of the patient.

4. **Recording and Retrieval of Ultrasound Images**

   This section gives details of the format and presentation of the images obtained during the examination. An appropriate selection of the diagnostic archived images must be included to enable normal viewing of this data. Images should be presented normally at end of case report with clearly labelled figure headings linked to text. Students are advised to highlight any demonstrable pathology using arrows and sign posts.

5. **References/Bibliography**

   - Harvard style: www.bournemouth.ac.uk/library/citing_references/citing.refs_main.html
Case Studies Protocol

1. Anonymised, optimum quality images must accompany all case-studies.
2. No evidence of patient or hospital/clinic identity.
3. A patient consent form (Appendix 2) to display images should be signed by the Practice Educator and should accompany all case studies.
4. All images, where possible should show pathology/relevant anatomical structures in at least two anatomical planes.
5. All images should have accurate and relevant annotation (including pictogram showing patient positioning and transducer position and text to indicate organs/areas scanned and whether Left or Right).
6. All images should, where possible, display safety indices (TI and MI).

Case Studies Marking Guidelines – Appendix 1
FOCUSED MSK ULTRASOUND COURSE

Clinical Assessment
Clinical Assessment Timetable

It is envisaged that with few exceptions most students will complete clinical competency in 8-12 months.

The course leader will contact all Practice Educators to advise them of the timetable for clinical assessments.

Assessments will be normally accommodated 8 months after stage 1 seminar. This will allow the course leader to identify potential students who are/will be ready for assessments.

Clinical Assessment Protocol

Clinical assessment will normally be undertaken in the SMU clinic subject to prior agreement between the course leader and the student, ensuring that the student has had sufficient prior experience in the clinic and is familiar with the working environment and equipment.

Students will be examined on a list of 6 consecutive patients (3 upper and 3 lower limb) by an assessor designated by the course leader or a member of the teaching faculty. The moderator is normally the second marker.

The students will be assessed in a specialist MSK clinic carried out in the SMU. For each patient, students will be assessed on their ability to carry out a full and comprehensive ultrasound examination in MSK thus demonstrating a reasonable range of clinical cases consistent with safe practice. A student who has failed one or two regions but passed the rest will only retake failed regions at second attempt. In this case, the assessment will continue to completion, only if safe to do so, for the purpose of student evaluation for feedback and remedial activity planning. The student will be informed of the fail on completion of the list of 6 patients. In a case of unsafe practice the Practice Educator will intervene and take the responsibility to complete the examination.

For each case scanned, students will receive feedback, and in the case of failure, remedial action will be discussed in the presence of the assessor and moderator and an action plan formulated.

Students will be able to attempt to undertake a failed clinical assessment on one further occasion (attempt 2) and will have the option to request an independent assessor agreed by the course leader.

In line with SMU regulations, if a student fails the clinical assessment at the second attempt (the re-sit) the course leader will normally permit the student to repeat the whole unit including coursework and logbook. A repeated unit can only be undertaken on one occasion. Where any reassessment has taken place, the unit mark will not exceed 50%.

Students will be expected to carry out the examination in an autonomous manner. In the event of finding a complex or unexpected pathology, the student may seek advice from the Practice Educator, at a level consistent with the help required by a first post Sonographer. Patients’ informed consent (see Patient Consent Form Appendix 3) will be obtained by the Practice Educator prior to the assessment and it will be made clear to patients that they have the right to decline to participate and this will in no way jeopardise their rights for normal clinical care. He/she will also be advised that they can withdraw from the assessment at any time without detriment to their care. Notwithstanding the assessment, all patients will be managed and receive the same care as in the normal routine clinical practice setting. The primary responsibility for production of the diagnostic
report lies with the qualified/accredited Practice Educator and not the student. Patients will not be disadvantaged in any way by agreeing to be part of the assessment procedure.

Criteria: Clinical session

- A routine ultrasound clinic will be booked in a chosen unit subject.
- 6 patients will be booked in a clinical session in any one application.
- The Practice Educator will inform all patients of the assessment procedure.
- The Practice Educator will gain the patient’s consent prior to the scan (Consent form: Appendix 3).
- The Practice Educator will be present throughout the session and will normally fulfil the role of assessor.
- The student will complete the examination (according to departmental protocol), provide a verbal and written report for the Practice Educator and the moderator.
- The assessor with the moderator will make the final judgment on the student’s competence and fitness to practise.
- Students will be given the outcome and receive immediate feedback on their performance.
- Unsuccessful students will be guided towards remedial training and repeat assessment and an action plan formulated.
Musculoskeletal Stage 1 Ultrasound:

<table>
<thead>
<tr>
<th>SUBJECT AREA</th>
<th>NO OF PATIENTS</th>
<th>TYPE OF PATIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper limb</td>
<td>3</td>
<td>To include one of each of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shoulder/elbow/wrist</td>
</tr>
<tr>
<td>Lower limb</td>
<td>3</td>
<td>To include one of each of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>knee/ankle/foot</td>
</tr>
</tbody>
</table>

Aims and Objectives:

- Systematic approach to upper limb and lower limb ultrasound technique
- Recognition and the demonstration of key landmarks in defining upper limb and lower limb ultrasound anatomy
- Recognition and the demonstration of key landmarks in defining upper limb ultrasound pathology
- Demonstration of communication and report writing skills
- Correct management of patient prior, during and after the ultrasound examination
- Awareness of limitations of upper and lower limb ultrasound
- Awareness of safety and quality assurance issues in upper and lower limb ultrasound.
- Knowledge of subsequent patient management.
- Awareness of patient’s medication and clinical conditions.
- Management of ultrasound list and time management of each examination.
- Safe and effective use of appropriate equipment based on current evidence-based local, national and international safety guidelines.
- will demonstrate competency in MSK US of upper and lower limb.

The Practice Educator will gain patient consent prior to scanning (Consent form: Appendix 3).
## SMU, AECC University College Ultrasound Clinical Assessment Form

*(please see accompanying Marking Scheme for guidance)*

### Pre-patient arrival

#### Stage 1

Compulsory/core elements must be ticked Yes:  

#### a) Request Form – did the student take into consideration the following points:

*(compulsory/core elements must be ticked Yes)*

<table>
<thead>
<tr>
<th>1. Confirmed appropriate referral</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Confirmed referring clinician/practitioner</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3. Previous images/results checked</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

#### b) Ultrasound Room – student will check the following to ensure safe environment for patient examination:

*(compulsory/core elements must be ticked Yes)*

| 1. Adequate room preparation | Yes | No |
| 2. Input correct patient data | Yes | No | N/A |
| 3. Correct equipment selection | Yes | No |

### Patient arrival

#### c) Patient preparation – student will carry out the following prior to the start of the examination:

*(compulsory/core elements must be ticked Yes)*

| 1. Introductions | Yes | No |
| 2. Three point check of patient’s identity | Yes | No |
| 3. Check patient history | Yes | No |
| 4. Ensure correct examination | Yes | No |
| 5. Explanation of ultrasound examination and consent | Yes | No |
| 6. Obtain patient’s consent | Yes | No |
### d) Examination risk assessment – student will check the following and take appropriate action: *(compulsory/core elements must be ticked Yes or n/a)*

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Contraindications of the examination</td>
<td></td>
<td></td>
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<tr>
<td>2. Patient handling</td>
<td></td>
<td></td>
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<tr>
<td>3. Infection control</td>
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</tbody>
</table>

### e) Examination procedure – the student will ensure the following: *(compulsory/core elements must be ticked Yes)*

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Correct Patient positioning</td>
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<tr>
<td>2. Patient Safety</td>
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<td></td>
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<tr>
<td>3. Correct setting of ultrasound equipment</td>
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<tr>
<td>4. Input correct patient data</td>
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<tr>
<td>5. Patient Monitoring</td>
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<td>6. Patient comfort</td>
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<td></td>
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<tr>
<td>7. Effective communication with patient</td>
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</tbody>
</table>

### f) Competency assessment – the student will demonstrate the following safe practice: *(compulsory/core elements must be ticked Good or Safe or n/a) (automatic fail)*

<table>
<thead>
<tr>
<th>Safe Practice</th>
<th>Good</th>
<th>Safe</th>
<th>Unsafe</th>
<th>n/a</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Ultrasound technique</td>
<td></td>
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<tr>
<td>2) Anatomy (including key landmarks)</td>
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<tr>
<td>3) Pathology (including key landmarks)</td>
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<tr>
<td>4) Image generation</td>
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<tr>
<td>5) Image interpretation (diagnosis)</td>
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<tr>
<td>6) Measurements</td>
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<tr>
<td>7) Communication with patient</td>
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<tr>
<td>8) Interaction with Practice Educator</td>
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<tr>
<td>9) Recognises own limitations</td>
<td></td>
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<tr>
<td>10) Recognises limitations of the examination</td>
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<tr>
<td>11) Report writing skill</td>
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<tr>
<td>12) Explanation to the patient</td>
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</tbody>
</table>
Patient leaves

**g) Post examination assessment** – the student will demonstrate satisfactory knowledge and understanding pertaining to safe practice in the following: (compulsory/core elements must be ticked Good or Safe)

(automatic fail □ □)

1) Critical analysis and interpretation of ultrasound images in light of clinical history
   - Good □ Safe □ Unsafe □
2) Communication and attitudinal skills in defining ultrasound findings to patients and colleagues
   - Good □ Safe □ Unsafe □
3) Critical evaluation of professional Issues (including legal, ethical, medico legal) in patient management
   - Good □ Safe □ Unsafe □
4) Impact of ultrasound findings on patient Management
   - Good □ Safe □ Unsafe □

**h) Post-examination care** – the student has taken the following items in consideration after the examination has been completed: (compulsory/core elements must be ticked Yes)

1. Patient explanation in line with departmental protocols and safe practice
   - Yes □ No □
2. Accurate recording of all data collected
   - Yes □ No □
3. Correct patient dispersal
   - Yes □ No □

**Stage 2 - Clinical discussion post-examination:** The student will demonstrate knowledge and understanding of the following topics taking into consideration the recommendations of national and local ultrasound imaging guidelines and protocols. (compulsory/core elements must be ticked Good or Safe)

(automatic fail □ □)

<table>
<thead>
<tr>
<th></th>
<th>Safe</th>
<th>Unsafe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Local infection control procedures</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Clinical justification for the examination</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Medical terminology relevant to the examination conducted</td>
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<tr>
<td>4</td>
<td>Anatomy and Pathology demonstrated</td>
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<tr>
<td>5</td>
<td>Patient’s physical and emotional needs</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Equipment selection and image generation</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Safe operation of ultrasound equipment</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Assessment of ultrasound images</td>
<td></td>
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<tr>
<td>9</td>
<td>Accuracy of diagnosis</td>
<td></td>
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<tr>
<td>10</td>
<td>Risk v benefit of the examination carried out</td>
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<tr>
<td>11</td>
<td>Quality assurance, monitoring and maintenance procedures</td>
<td></td>
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<tr>
<td>12</td>
<td>Patient management (medico-legal and ethical consideration)</td>
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<tr>
<td>13</td>
<td>Reporting (diagnosis and dissemination of ultrasound findings)</td>
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<td>14</td>
<td>Inter-professional roles and responsibilities</td>
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<td>15</td>
<td>Critical appraisal of own practice</td>
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<tr>
<td>16</td>
<td>Health and safety issues (ergonomics/RSI)</td>
<td></td>
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</tbody>
</table>
### Stage 3 – Analysis of student’s competency

Please indicate your opinion of the student’s ultrasound skills demonstrated by this assessment.

<table>
<thead>
<tr>
<th>COMPETENCY (confirmed)</th>
<th>COMPETENCY (not confirmed)</th>
<th>Referred</th>
<th>Remedial Action</th>
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</table>

### Stage 4 – Pass/Fail

If the student has at any point been marked as not competent then a mark of **FAIL** must be recorded.

<table>
<thead>
<tr>
<th>PASS</th>
<th>FAIL</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
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</table>

**Assessor’s comments:**

Assessor’s signature:………………………………………………

Assessor’s name (please print):……………………………………

Date:…………………………………………

**Moderator’s comments:**

Moderator’s signature:…………………………………………

Moderator’s name (please print):……………………………………

Date:……………………………………
<table>
<thead>
<tr>
<th>Marking Scheme Guide for Clinical Assessment</th>
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<tbody>
<tr>
<td>In all cases of Competency indicators: <strong>Compulsory</strong> components must be ticked <strong>Yes</strong>, if not, it is an automatic technical fail.</td>
</tr>
</tbody>
</table>

**Stage 1**

**a) Request Form:**

1. **Compulsory:** Confirmed appropriate referral: student will read the request form and ascertain that the referral is appropriate and conforms to the departmental guidelines.

2. Previous Images/results: student will refer to any previous examinations, findings (medical/hospital/clinical notes) and view available images to inform himself/the Practice Educator and the assessor of the extent and the nature of the examination to be undertaken.

3. Confirmed referring clinician/practitioner: student will confirm the status of the referrer.

4. **Compulsory:** Check patient detail: student will insure that correct patient name/date of birth/identification number etc is clearly visible on the request form.

**b) Ultrasound room:**

1. Adequate room preparation: Student will ensure that room is clean and tidy. Student will ensure that there is adequate ventilation and lighting; Student will check changing facility and ensure privacy to make patient comfortable in cases where intervention and/or intimate examination is to be carried out. For example: TVS/TRUS/Testes. Student will ensure that chaperone where required is arranged beforehand.

2. **Compulsory:** Input correct patient data: student will ensure that correct patient name and ID number is entered into the ultrasound machine and any auxiliary equipment used.

3. Equipment selection: student will ensure that correct transducers are available and that they comply with health and safety standards and that damaged and exposed leads/cables are removed and the recording device(s) is able to save and retrieve ultrasound images.

**c) Patient preparation:**

1. **Compulsory:** Introductions; Student will meet and greet the patient. Student will introduce himself and other staff members present and ascertain that the patient is happy and fully understands the reason for this scan.

2. **Compulsory:** Three point identity check: student will ask the patient to confirm their name, DOB and address and check this with the request form and other data available.

3. Patient history: student will ask patient for relevant information about their condition/presenting complaint in order to inform and enhance the conduct of the ultrasound examination.

4. **Compulsory:** Ensure correct examination: Student will be in a good position now to ensure that the examination to be carried out reflects patient’s condition and is line with departmental protocols.

5. **Compulsory:** Explanation of ultrasound examination & informed consent: Student will ensure that accurate information is given to the patient about the examination to be undertaken (including the potential and limitations), the duration of the examination and the staff members who will start and finish the examination.

6. **Compulsory:** Obtain patients consent: student will ensure that the patient fully understands the nature of the examination and has given verbal/written consent in line with departmental protocols. Students will also be expected to take this opportunity to gain consent to use images for purpose of case-studies.
### d) Examination risk assessment:

1. **Compulsory:** Contraindications of the examination: Student will ensure that the patient is able to tolerate the examination procedure in view to maintaining safe practice. For example in case of TVS recent surgery/cervical smears and any allergy to latex; ward patients or patients scanned on the ward/intensive units and A & E departments would also require special consideration for health and safety issues. It would also be valuable for students to identify any patients who may also have allergic reaction to coupling gel.

2. Patient handling: students will ascertain the mental, physical and emotional needs of the patient. Non-ambulant patients will require help in movement onto couch from chairs/bed etc. This may require help from other staff members either present or within the department and will require a degree of co-ordination on behalf of the student. Patients with language difficulties or moral attitudes may also require special intervention.

3. **Compulsory:** Infection control: Student will ensure that all infection control protocols have been followed. There is a need to have clean room, disposing of spoiled linen etc. from previous examination.

### e) Examination procedure:

1. Correct patient positioning: Student will ensure that the patient is correctly positioned for maximum patient comport and ease of examination (wards/theatre/A&E patients may require special consideration, movement in view to life support and other ancillary equipment).

2. **Compulsory:** Patient safety: Student will ensure correct selection of equipment and probes and all electrical leads, cables etc are safely stored out of the way and that there is ambient light for ease of movement in the ultrasound room.

3. **Compulsory:** Correct setting of the equipment: Students will ensure that machine controls are set correctly to the application (TGC/OG, Frequency, Power levels).

4. **Compulsory:** Input accurate patient data: Student will ensure that patients scan findings are recorded accurately onto ultrasound machine and any recording device used. Student will also ensure that ultrasound equipment application menus have accurate data entry (patient details/ultrasound findings/reports and images).

5. **Compulsory:** Patient monitoring: Student will ensure that patient is happy with the examination procedure prior to commencement of the scan.

6. Patient comfort: Student will confirm if patient has any other medical conditions (back conditions, recent surgery etc) and is comfortable and able to withstand the duration of the examination.

7. Effective communication with patient: Student will ensure that the patient has full explanation and any areas of concern/explanation about the examination have been fully covered in line with departmental protocols for safe practice.
f) Competency Assessment:

1. **Compulsory:** Ultrasound technique: Student will carry out the ultrasound examination of area of interest competently demonstrating correct use of machine controls.

2. **Compulsory:** Anatomy: Student will identify and show key landmarks in defining anatomy of the area of interest and record relevant images as per departmental protocol and as instructed by the Practice Educator/assessor.

3. **Compulsory:** Pathology: Student will identify and show pathology present using key landmarks and take relevant images as per departmental protocol and as instructed by the Practice Educator/assessor.

4. **Compulsory:** Image generation: Student will demonstrate correct operation of ultrasound machine to produce optimum images in line with departmental protocol.

5. **Compulsory:** Image interpretation: Student will comment on images as directed by the department protocol and as instructed by the Practice Educator/assessor. Where there is an opportunity based upon the scan findings the student will either give verbal or written account of the diagnosis made at the end of the examination or where expectable during the scan.

6. **Compulsory:** Measurements: Where relevant student will take accurate measurements as required by the departmental protocol.

7. **Compulsory:** Communication with patient: Student will communicate with patient effectively for the duration of the examination and where relevant will keep the patient informed of the examination procedure/findings within the constraints of departmental protocol whilst maintaining safe practice.

8. **Compulsory:** Interaction with Practice Educator: Student will interact with the Practice Educator in an advisory capacity only (especially when there is a suspicion of abnormality or difficulty encountered with the examination or the patient). In any situation, student will show correct interaction with the Practice Educator demonstrating competency and safe practice.

9. **Compulsory:** Student recognises own limitations: Student will employ all measures (knowledge of science and instrumentation, clinical skills etc) to ensure that a satisfactory examination is conducted but also recognise the need for advice and second opinion as a mark of safe and competent ultrasound practice.

10. **Compulsory:** Recognises the limitations of the examination: Student will appreciate difficult situations (patient habitues, scar tissue, gas, poor patient preparation) which may lead to unsafe practice.

11. **Compulsory:** Report writing skill: Student will examine findings of the examination and along with the recorded images provide a succinct/accurate report in line with the departmental protocols (this will be a written report in the first instance).

12. **Compulsory:** Explanation to the patient: Student will be in a position to provide explanation to the patient of the conduct of the examination and the relevance of the findings from the examination. This will be delivered in the context of the departmental protocols.
g) Post examination assessment: after the examination has been completed the student will be expected to demonstrate:

1. **Compulsory:** Critical analysis and interpretation of ultrasound images in light of clinical history: Student will be able to view the images, explain what the images represent, demonstrate and explain the key landmarks pertaining to normal and abnormal anatomy to the assessor.

2. **Compulsory:** Communication and attitudinal skills in defining ultrasound findings and production of written report to colleagues: Student will be expected to evaluate ultrasound findings taking into consideration the medical history of the patient and any previous examinations reports and provide a commentary on possible diagnosis and differential diagnosis (It is imperative that student communicates effectively information on ultrasound findings to the assessor and moderator in the room and at all time demonstrating safe practice).

3. **Compulsory:** Critical evaluation of professional issues (including legal and ethical) in patient management: Student will be expected to recognise own limitations and the limitations of the ultrasound examination conducted. The student will be expected to give appropriate advice to patient on ultrasound findings within the departmental protocols.

4. **Compulsory:** Impact of ultrasound findings on patient management: Students will make a judgement on ultrasound findings and likely outcome and consider the changes if any on future management of patient. For example on discovering an abnormality the student will draw on own knowledge and understanding of the ultrasound findings and with patients medical history be able to inform the assessor of likely outcome.

h) Post-examination care: the student has taken the following items into consideration after the examination has been completed:

1. **Compulsory:** Patient explanation in line with departmental protocols and safe practice: Student will be expected to give patient an explanation about the ultrasound findings. This explanation will be guided by departmental protocol, patient’s makeup (attitude, vulnerability) and the limitations of the examination conducted. The need for clear explanation about the sending of report/images to referring clinician, the need for second opinion and further examinations that might be required need to be articulated to patients prior to dispersal.

2. **Compulsory:** Accurate recording of all data collected: Student will retrieve data collected and ensure that the data is available for assessment by the assessor, moderator and Practice Educator.

3. Correct patient dispersal: student will ensure that all patients, ambulant, non-ambulant and on wards/theatre/A&E are informed of and clear on what they have to do prior to leaving the department.
Stage 2: Clinical discussion post examination

Once the patient has been dispersed student will be in the possession of all data and ultrasound images pertaining to the clinic conducted. The student will undergo a viva type assessment of key areas relating to safe practice. Training of assessor in order to standardise the viva type assessment will take place during the Practice Educator’s training day.

1. **Compulsory**: Local infection controls: This will highlight and explore student’s knowledge and understanding of hygiene requirement for example: Cleaning of the transducers, cleaning of hands, interventional procedures linked to health and safety issues.

2. **Compulsory**: Clinical justification for the examination: request form and validity/credibility of referral.

3. **Compulsory**: Medical technology: ability to comprehend different types of likely conditions and symptoms.

4. **Compulsory**: Anatomy and pathology demonstrated: ability to recognise normal and abnormal anatomy demonstrated.

5. **Compulsory**: Patient’s physical and emotional status: ability to deal with difficult patients (language barrier and vulnerable patients).

6. **Compulsory**: Equipment selection and image generation.

7. **Compulsory**: Safe operation of ultrasound equipment: Manipulation of machine controls, key controls) to produce optimum images. Correct annotation, data storage and retrieval.

8. **Compulsory**: Assessment of ultrasound images.

9. **Compulsory**: Accuracy of diagnosis.

10. **Compulsory**: Risk v Benefit: An accurate judgement on the suitability of the ultrasound examination taking into consideration patient habitués and own limitation and the limitations of the equipment used. Ability to explain accurately the examination procedure to patient and to gain patient’s consent to proceed.

11. **Compulsory**: Quality assurance: monitoring and maintenance procedures: QA test undertaken routinely to highlight early indications of faults which may lead to unsafe ultrasound practice. Regular QA tests, equipment used and frequency of testing. QA of personnel to include CPD activities, update and regular audits.

12. **Compulsory**: Patient management: ability to provide good ultrasound experience for patient in consideration of patients emotional and physical needs. Effective communication with patient throughout the examination.

13. **Compulsory**: Reporting: satisfactory skills in writing findings of the ultrasound examination linked to departmental protocols taking into consideration national and professional guidelines.

14. **Compulsory**: Inter-professional roles and responsibilities: Able to work as an effective team member, ability to get on with colleagues, ability to communicate results/findings of the examination to other healthcare professionals.

15. **Compulsory**: Critical appraisal of own practice: able to reflect back on the examination performance and recognise any short falls and own limitations. Student will have the opportunity to map out own personal development.

16. **Compulsory**: Health and safety issues (ergonomics/RSI): Student should able to recognise equipment design and correct positioning in scanning of patients as a sign of good practice. Students will appreciate that incorrect positioning of equipment, patient and own stance may lead to RSI.
Clinical Assessment Outcome Measures

1. Pass criteria:

To achieve a PASS for the entire assessment the student MUST:

1. Obtain a PASS in all compulsory elements for each patient, hence the student must have demonstrated safe practice by satisfying the core requirements of the assessment form in all six cases performed. In order to do this, students must receive a Yes tick in all compulsory assessment elements across all six patients.

For example:

1. Confirmed appropriate referral
   - Yes [X]
   - No [ ]

Those students who have been given a technical fail (any grey box) in a compulsory area will have failed the whole of the assessment. If the failure is regarded as unsafe practice and may compromise patient/student or department safety then the Practice Educator will take over and complete the examination.

The student will still be allowed to continue with the rest of the assessment if deemed safe and necessary by both the assessor and the moderator. Advice will be given to the student after the completion of the assessment on the reasons for technical failure and remedial action to be taken.

2. Achieved a PASS in all compulsory components of assessment and a minimum of 56% of the non-core items (white boxes).

In addition, it is possible that a student might score a NO tick in a non-compulsory assessment element but this will not constitute a technical failure.

For example:

1. Introductions
   - Yes [ ]
   - No [X]

The final judgement of safe practice/competency will be at the discretion of the assessor during the post assessment feedback stage.

Remedial Action for referred students

Students who have scored a fail will be given full information on the reasons for failure. Students will be provided with assessment results and shown the shortfalls in achieving safe and competent ultrasound practice. Students will be given an opportunity to carry out a critical appraisal of their own performance in the light of examination findings.

Once the student has recognised and accepted the assessment findings, remedial action will be discussed and a suitable time-frame will be set-up to address the concerns of the moderator and assessor towards successful repeat assessment.
Students will also be given an opportunity, should a situation occur, where an independent moderator/assessor may be needed for the repeat assessment. In this case the programme leader in consultation with the assessor will nominate an independent assessor/moderator.
Role of the Practice Educator

The Practice Educator:

This will be a Sonographer with a recognised qualification (HCPC/SOR/MDU or other approved professional bodies); an MSK specialist trained and able to supervise in MSK ultrasound techniques, with overall responsibility for the student’s training in a clinical setting.

Training for Practice Educator:

The Practice Educator will attend the SMU “Practice Educator” training day (Appendix 4) for the purposes of:

1. Familiarisation with the requirements of the programme
2. Knowledge and understanding of the role of the Practice Educator
3. Familiarisation with the IT and learning resources of the SMU

Key role of Practice Educator:

1. he/she will ensure that the student has access to key resources for the successful completion of the programme; to include suitable place of practice, ultrasound machines fit for practice and suitable clinics for maximum learning experience.

2. he/she will prepare the student for clinical competency assessment in ultrasound, according to the programme guidelines, in their selected area of application(s) within the designated time-frame.

3. liaise regularly with course leader/team regarding student progress both in academic and clinical environment

The Practice Educator will also:

- ensure that the student has access to high resolution ultrasound machines
- organise regular ultrasound clinical sessions/rotas ensuring a good balance of case load to reflect the requirements on the unit(s)
- be available for regular and quality supervision
- teach the student in ultrasound techniques
- guide the student in communication skills
- guide the student in report writing skills
- guide the student in IT and documentation skills
- recognise the student’s needs
- recognise the student’s limitations
- ensure student is aware of professional issues i.e. counselling, informed consent and risk management
- provide timely and constructive feedback to the student and to the programme leader
- ensure that the student has the opportunity to submit coursework on time
- liaise with the programme leader on the student’s academic and clinical progress
- prepare the student for the clinical competency assessment
o liaise with Course Leader to agree a suitable assessment date and place
o organise suitable clinic taking into consideration the requirements of the specific application
o ensure student is informed of pending assessment
o ensure all documents (assessment forms and patient consent forms) are available for the assessment day

• will be available on assessment day as an assessor
Role of the Assessor

Who is the assessor:

The assessor will normally be the Practice Educator.

This may be a Sonographer with a recognised qualification (HCPC/SOR/MDU or other approved professional bodies); a specialist trained in MSK ultrasound techniques with overall responsibility for the student’s training in a clinical setting.

Training for assessor:

The assessor will attend the SMU Practice Educator training day (Appendix 4) for the purposes of:

1. Familiarisation with the requirements of the programme
2. Knowledge and understanding of the role of the Practice Educator
3. Discussion of Clinical Assessment process
4. Familiarisation with the IT and learning resources of the SMU

Key role of assessor:

The assessor will be responsible for assessing the student’s clinical competency.
Role of the Moderator

Who is the Moderator:

The moderator will normally be the course leader; or a member of teaching faculty designated by the course leader.

This may be a Sonographer with a recognised qualification (HCPC/SOR/MDU or other approved professional bodies), a MSK specialist with overall responsibility for the student’s training in a clinical setting.

Training for moderator:

Designated moderators will attend the SMU “Practice Educator” training day (see Appendix 4) for the purposes of:

1. Familiarisation with the requirements of the programme
2. Knowledge and understanding of the role of the Practice Educator
3. Discussion of Clinical Assessment process
4. Familiarisation with the IT and learning resources of the SMU

Key role of moderator:

The moderator will be responsible for scrutinising the student’s clinical competency to ensure standardisation between sites and parity of student assessment.

The moderator will:

1. liaise with Practice Educator to agree and organise the assessment day
2. confirm all documents pertaining to the assessment are available on the day
3. meet the student and Practice Educator prior to assessment
4. ensure student and assessor are fully briefed and understand the assessment procedures
5. conduct the assessment with the assessor according to the assessment guidelines
6. liaise with assessor to discuss and agree on the student’s performance. This can take place at the end of each patient examination or at the end of the clinic/assessment.
7. at the completion of the assessment, discuss the results with the student
8. provide feedback to the student on their performance and recommendations on referral and remedial action if necessary
Role of the Student

The student will:

1. follow the assessment procedure for each patient as per the assessment guidelines
2. ensure that all the patients are attending the clinic and student is in possession of an up-to-date the clinical list. This will ensure patient numbers and range of examination and timing.
3. scan all patients according to the assessment guidelines and agreed departmental protocol
4. be prepared for post-assessment feedback discussion with assessor and moderator
Appendix 1 Case Studies Marking Guidelines

Unit title: Competency in Clinical Practice
Level [M]

NOTE - PLEASE REFER TO UNIT SPECIFICATION FOR DETAILS OF ASSESSMENT

<table>
<thead>
<tr>
<th>Evidence of:</th>
<th>None</th>
<th>Very little</th>
<th>Satisfactory</th>
<th>Good</th>
<th>Very good</th>
<th>Excellent</th>
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<tr>
<td>Critical evaluation of the type of examination and clinical indications</td>
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<td>Critical evaluation of equipment selection and contrast media for safe use</td>
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<td>Critical evaluation of technique used with evidence of safe practice</td>
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<td>Critical reflection and evaluation on the appropriateness of the examination</td>
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<td>Critical evaluation of the findings, interpretation and diagnosis of the ultrasound examination</td>
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<td>Critical evaluation of the report writing skills and effective communication of results to the patient and referring clinician</td>
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<td>Critical evaluation of the role of any alternative examinations and their usefulness using evidence-based practice</td>
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<td>Pass</td>
<td>Merit</td>
<td>Distinction</td>
<td>High distinction</td>
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<td>Subject knowledge and understanding</td>
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<td>Intellectual skills including analysis, evaluation and critical judgment</td>
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<td>Subject specific skills including application and problem solving</td>
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<td>Transferable skills including presentation and communication</td>
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Appendix 2  Consent to Use Patients’ Ultrasound Images in Case Studies

It is imperative that prior to submission of case studies, students obtain consent of patients to reproduce ultrasound images. In all instances student should consult Practice Educator/mentor and conform to hospital rules and regulations when submitting ultrasound images.

*(All images should be anonymous (no patient or hospital/practice identity please).*

Please insert this form, **signed by your Practice Educator**, in the front of the case study.

I certify that ultrasound images reproduced in this case-study is with patient’s full consent.

Signed:

Practice Educator/Mentor………………………………………………………………

Approved: Course Leader………………………………………………………….

Warren Foster
Appendix 3  Patient Consent Form for Clinical Assessments

Introduction:
Practical experience of ultrasound scanning forms an essential component of all training in clinical ultrasound. During training, students develop an understanding of the machine controls. They also appreciate practical skills required in carrying out a wide range of ultrasound examinations, obtaining images of optimum diagnostic quality, interpreting and reporting findings.

Ultrasound safety:
“Ultrasound is now accepted as being of considerable diagnostic value. There is no evidence that diagnostic ultrasound has produced any harm to patients in the four decades that it has been in use” (BMUS 2002).

Ultrasound course:
This course has been designed to provide healthcare professionals with an opportunity to practice ultrasound safely for the benefit of patients.

The assessment has been included for the following purpose:

- Appreciation of all the skills required to practice safely
- Understanding machine controls to produce optimum images
- Recognition of normal ultrasound anatomical markers
- Recognition and diagnosis of abnormal anatomical markers
- Communication and reporting skills

Your rights as a patient:
As a patient you are allowing yourself to be scanned by the student under expert clinical supervision. At all times the student will be monitored for safe ultrasound practice and the expert will judge and make the final diagnosis.

If you feel that you do not want to participate in this assessment please inform the supervisor. This will not in any way compromise your care and you may withdraw your consent from participation at any time without detriment to your care.

------------------------------------------------------------------------------------------------------------
A report and advice for any future follow-up will be provided for your clinic.

Consent:
I give consent to be scanned by students for the purpose of training in ultrasound and I fully understand the guidelines in place for safe practice.

Name: .................................  Sign: .................................
Date:  ......................

Tutor/Course Leader:  Practice Educator:
Warren Foster
--------------------------------------------------------------------------------------------------------
## Appendix 4  Practice Educator Training Day Timetable

<table>
<thead>
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<th>10-12.30</th>
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<tbody>
<tr>
<td>Familiarisation with the course (WF/PPR)</td>
<td>Group Work: Assessment Procedure (WF/PPR)</td>
</tr>
<tr>
<td>Course documentation (WF/SB)</td>
<td>Role of the Practice Educator/Assessor (WF)</td>
</tr>
<tr>
<td>Learning Resources (SMU) (WF)</td>
<td>Role of the Moderator (WF)</td>
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<tr>
<td>Assessment Procedures/</td>
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<tr>
<td>Documentation (WF/PPR)</td>
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<td>Coffee</td>
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<td>Feedback/Discussion (WF/PPR)</td>
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<tr>
<td>Tour of the SMU (WF)</td>
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</tbody>
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Dr W. Foster(WF)  
Dr. PP. Raju (PPR)  
Sandra Battiston (Manager SMU) (SB)