Appendix 4: Obstetric Ultrasound

This curriculum is intended for clinicians who perform obstetric ultrasound scans. It includes standards for theoretical knowledge and practical skills. Level 1 competence should be obtained by anyone performing routine unsupervised scans in pregnancy.

**Level 1**

- It is recommended that trainees should perform a minimum of 500 examinations over a 3 to 4 month period under supervision. However, trainees will acquire the necessary skills at different rates and the end point of training should be judged by an assessment of competencies.
- Examinations should encompass the full range of conditions listed below.
- A log book listing the types of examinations undertaken should be kept.
- Training should usually be supervised by a level 2 practitioner. In certain circumstances it may be appropriate to delegate some of this supervision to an experienced level 1 practitioner with at least two years of regular practical experience.
- Trainees should attend an appropriate theoretical course (see below) followed by a theoretical examination and the trainee should read appropriate textbooks and literature.
- To maintain level 1 status, the practitioner should perform at least 500 examinations each year.
- During the course of training, the competency assessment sheet should be completed as this will determine in which area or areas the trainee can practise independently.

**Level 1 Knowledge Base and Recommended Contents of Level 1 Theoretical Course**

A minimum of 30 hours theoretical teaching is required preferably at the beginning of the training period. This should include:

- Physics and Technology, Ultrasound Techniques and Administration (see Appendix 2)
- Dating of pregnancy
- Weight estimation and fetal growth
- Normal fetal anatomy
- Common fetal anomalies
- Multiple pregnancy
- Placenta, amniotic fluid
- Screening for fetal chromosomal anomalies: soft markers, nuchal translucency
- Invasive procedures: amniocentesis, chorionic villus biopsy
- Psychological aspects
- Ethical aspects
- Quality Control
Level 1 Competencies to be acquired
At the end of the training the trainee should be able to

• Perform a systematic abdominal ultrasound examination of
  • the pregnant uterus, placenta, amniotic fluid and fetus
• Optimize and correctly orientate the ultrasound image
• Obtain accurate measurements of the fetal biparietal diameter,
  • femur length and abdominal diameter or circumference
• for dating and/or weight estimation
• Evaluate fetal anatomy, recognizing the following structures
  • and discriminating normal from abnormal findings in these
• structures:
  - Skull/brain
  - Midline echo in brain
  - Cavum septum pellucidum
  - Cerebellum
  - Cisterna magna
  - Cerebral ventricles
  - Neck
  - Thorax
  - Four chamber view of heart plus outflow tracts
  - Stomach
  - Umbilical cord insertion
  - Kidneys
  - Urinary bladder
  - Spine
  - Extremities (arms, legs, hands and feet)
  - The ability to communicate both normal and abnormal findings to the pregnant woman

Level 2
• Training should take the form of at least 30 clinic sessions in a centre under the supervision of at least a level 2 practitioner
• A minimum of 800 examinations will have been undertaken A log book of 10 well documented cases (eg fetal malformations, intrauterine growth restriction, twin complications etc) should be kept.
  This should include ultrasound images, clinical data and literature research
• The training requisite to this level of practice would be gained by a period of subspecialty training which may either be within or after the completion of a specialist training programme.
• During the course of training the competency assessment sheet should be completed
Training should include a theoretical course of at least 30 hours (see below) followed by a theoretical examination. To maintain level 2 status, the practitioner should perform at least 400 obstetric examinations per year.

**Level 2 Knowledge Base and Recommended Contents of Level 2 Theoretical Course**

- Safety of Ultrasound
- Literature search, internet databases, etc
- Fetal malformations (more advanced than level 1)
- Role of ultrasound compared to other imaging modalities, e.g., magnetic resonance imaging
- Fetal echocardiography
- Fetal Doppler
- Soft markers
- Diagnosis of syndromes
- Genetics
- Quality control
- Psychology, counselling
- Ethics

**Level 2 Competencies to be acquired**

Be able to:

- Diagnose common fetal malformations and have knowledge of their management
- Diagnose intrauterine growth restriction and have knowledge of its management
- Diagnose complications in twin pregnancies and have knowledge of their management

**Level 3**

A level 3 practitioner is likely to spend the majority of their time undertaking obstetric ultrasound and/or teaching, research, and development and will be an ‘expert’ in this area.

**Maintenance of Skills**

Recommended numbers of examinations to be performed annually to maintain skills at each level are given in the text. Practitioners should:

- Include ultrasound in their ongoing continued medical education (CME) and continued professional development (CPD)
- Audit their practice
- Participate in multidisciplinary meetings
- Keep up to date with relevant literature
These guidelines have been prepared and published on behalf of the European Federation of Societies in Ultrasound in Medicine and Biology (EFSUMB) by the members of the EFSUMB Education and Professional Standards Committee 1999-2005.

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The Minimum Training Recommendations for the Practice of Medical Ultrasound were published under the EFSUMB Newsletter section in the Ultraschall in der Medizin/European Journal of Ultrasound, Volume 27, issue 1 February 2006 page 79-105.
### APPENDIX 4: OBSTETRIC ULTRASOUND TRAINING COMPETENCY ASSESSMENT SHEET

#### Competencies/Skills to be acquired Level 1

**A formal theoretical and practical examination should take place at the end of training**

To be competent to perform/diagnose etc the following:

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- Systematic examination of pregnant uterus, placenta amniotic fluid & fetus
- Obtain optimal images in a correct orientation
- Obtain accurate measurements of biparietal diameter, femur length, abdominal diameter & circumference
- Discern normal from abnormal in:
  - Skull/Brain
  - Midline echo in brain
  - Cavum septum pellucidum
  - Cisterna Magna
  - Cerebellum
  - Cerebral Ventricles

To be competent to perform/diagnose etc the following:

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- Neck
- Thorax
- Four chamber view of heart/outflow tracts
- Stomach
- Umbilical Cord insertion
- Kidneys
- Bladder
- Spine in three planes (coronal, transverse & sagittal)
- Arms, legs, hands & feet
- Ability to communicate findings to pregnant woman

#### Competencies/Skills to be acquired Level 2

To be competent to perform/diagnose etc the following:

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- Diagnose common fetal malformations
- Diagnose intrauterine growth restriction
- Diagnose complications in twin pregnancies

- Logbook of 800 completed cases
- Illustrated logbook of 10 cases including clinical information & completed literature search
- Passed theoretical examination

**APPENDIX 4: OBSTETRIC ULTRASOUND TRAINING COMPETENCY ASSESSMENT SHEET**