EFSUMB
EUROPEAN FEDERATION OF SOCIETIES FOR ULTRASOUND IN MEDICINE AND BIOLOGY
'*Building a European Ultrasound Community*'

# MINIMUM TRAINING REQUIREMENTS FOR THE PRACTICE OF MEDICAL ULTRASOUND IN EUROPE

## Appendix 7: Breast Ultrasound

**Level 1**

- Trainees should initially attend an appropriate theoretical course to acquire the core knowledge base as itemised in Appendix 2 and should be familiar with anatomy and pathology of the breast in relation to ultrasound
- Practical training should involve at least one ultrasound clinic per week over a period of around no less than six months and no more than 1 year.
- A minimum of 100 examinations should be undertaken and a record of these kept. However different trainees will acquire the necessary skills at different rates and the end point of the training programme should be judged by an assessment of competencies.
- A log book of 50 cases should be kept which should record details of the indications for the procedure, the interpretation and a final report. These cases should be supported by correlation with clinical examination and other imaging findings and needle biopsy results and surgical histology where appropriate.
- Examinations should encompass the full range of conditions listed below.
- The cases scanned should include an appropriate range of normal and abnormal cases including palpable and impalpable lesions. They should also include patients presenting to symptomatic clinics, screening assessment clinics andpost-operative surgical clinics.
- Mentorship and training should be provided by a practitioner who has reached at least Level 2 competence. In certain circumstances it may be appropriate to delegate some of this supervision to an experienced level 1 practitioner with at least 2 years experience of regular practical experience.
- The practitioner should be working in line with National Occupational Standards. The practical experience should ideally be undertaken in conjunction with attendance on a recognised postgraduate course, such as that provided by some universities and trainees should read appropriate textbooks and literature

**Knowledge Base**

**Physics and Technology, Ultrasound Techniques and Administration:- Sectional and Ultrasound Anatomy**

- Normal Anatomy of female and male breast.
- Anatomical, physiological and developmental anomalies associated with the breast.
- The changes in ultrasound appearances associated with age, pregnancy and lactation, hormonal status, medication.

**Pathology in relation to ultrasound**

- Benign conditions including cysts, fibroadenomas, fibroadeno- lipomas, lipomas, haematomas, fat necrosis, hamartomas.
- Indeterminate abnormalities including duct papillomas, radial scar.
- Malignancy including ductal, lobular, inflammatory and other carcinomas.
- Normal and abnormal appearances of axillary lymph nodes.
- Inflammatory breast conditions including infection and abscess formation.
- Iatrogenic appearances including breast implants, early and late post-operative changes, seromas, haematomas, radiotherapy changes, fat necrosis, scarring.

**Competencies to be acquired**

**To be able to:**

- Perform a thorough ultrasound examination of the breast and axilla
- To recognise normal anatomy
- Understand the indications for and the importance of ultrasound in the triple assessment process.
- Understand the strengths, weaknesses and limitations of breast ultrasound.
- Be aware of the interdependency and significance of mammographic and ultrasound appearances.
- Be competent in recognising the criteria for lesion characterisation
- Confidently exclude the presence of a sonographic lesion within the breast.
- Write a detailed report of the ultrasound findings with grading, differential diagnosis, conclusion and recommendation for further management.
- Understand the principle of Doppler ultrasound and its relevance to breast imaging.
- Recognise personal limitations and ask for more expert advice if required

**Level 2**

**Interventional Techniques**

- After reaching competency at Level 1 practitioners may progress to Level 2. This should involve a minimum of 1 scanning clinic per week (at least 10 cases per week) for at least 3 months.
- Training for interventional techniques should include observation initially followed by performance of the examination and/or procedure under close supervision
- . When competence has been acquired then procedures may be undertaken alone but with support close to hand
- A logbook of diagnostic and interventional procedures performed should be kept with pathological correlation

**Competencies to be Acquired**

- Cyst aspiration: Initially to perform a minimum of 10 guided cyst aspirations of which at least 5 should be of cysts less than 2cms
- Aspirate cysts of less than 1cm diameter
- Guided fine needle aspiration biopsy (FNAB): Perform a minimum of 10* FNABs of solid lesions, with pathological correlation of cytology result and final pathology (if available)
- If FNAB is not performed in the department to be aware of the uses and limitations of the technique
- Guided core biopsies: Perform a minimum of 10* guided core biopsies with pathological correlation of core biopsy histology and final pathology (if available)
- Perform guided abscess aspiration and drainage
- Perform pre-operative guided localisations using skin marking and wire insertion techniques
- Perform guided marker or coil insertion prior to neo-adjuvant chemotherapy
- Ability to accept referrals from level 1 practitioners
- Absolute numbers may vary according to the practice of individual breast units

**Level 3**

**Competencies to be Acquired**

- To be able to accept referrals from level 1 and level 2 practitioners and undertake more complex ultrasound examinations
- To mentor and supervise level 1 and 2 practitioners
- To understand and be familiar with vacuum assisted breast biopsy.
- To conduct research
- To teach breast ultrasound at all levels
- To be aware of and pursue developments in breast ultrasound including Doppler and the use of intravascular contrast agents

**Maintenance of Skills**

In order to maintain competence the practitioner should perform at least 1 ultrasound clinic per week and a minimum of 500 examinations per year.

There should be continuing professional updating with attendance at multidisciplinary breast meetings and relevant and appropriate courses with a component relating to breast ultrasound scanning together with regular reviews of the current literature.

Regular audit of the individual's ultrasound practice should be undertaken

'EFSUMB is grateful to the Royal College of Radiologists, London, for their permission to adapt their 'Ultrasound Training Recommendations for Medical and Surgical Specialties' document published in 2005. Adaptations of these have been undertaken by members of the EFSUMB Education and Professional Standards committee for use elsewhere in Europe.

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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.

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## APPENDIX 7: BREAST ULTRASOUND TRAINING COMPETENCY ASSESSMENT SHEET

Trainee _____ Trainer _____

**Core Knowledge Base Level 1**

| | Trainer Signature | Date |
|---|---|---|
| • Physics and Instrumentation | | |
| • Ultrasound techniques | | |
| • Administration | | |
| • Sectional and Ultrasound anatomy | | |
| • Normal Anatomy of female and male breast. | | |
| • Anatomical, physiological and developmental anomalies associated with the breast. | | |
| • The changes in ultrasound appearances associated with age, pregnancy and lactation, hormonal status, medication. | | |
| • Pathology in relation to ultrasound | | |
| • Benign breast conditions including cysts, fibroadenomas, fibroadeno-lipomas, lipomas, haematomas, fat necrosis, | | |
| • Indeterminate abnormalities including duct papillomas, radial scar. | | |
| • Breast malignancy including ductal, lobular, inflammatory and other carcinomas. | | |
| • Normal and abnormal appearances of axillary lymph nodes. | | |
| • Inflammatory conditions in the breast including infection and abscess formation. | | |
| • Iatrogenic changes in the breast , including early and late post-operative appearances, . seromas, haematomas, radiotherapy changes, fat necrosis, scarring. | | |

**Competencies/skills to be acquired:**

| | Trainer Signature | Date |
|---|---|---|
| • Perform a thorough ultrasound examination of the breast and axilla | | |
| • Be able to recognise normal anatomy of breast and axilla | | |
| • Understand the indications for and the importance of ultrasound in the triple assessment process. | | |
| • Understand the strengths, weaknesses and limitations of breast ultrasound. | | |
| • Be aware of the interdependency and significance of mammographic and ultrasound appearances. | | |
| • Be competent in recognising the criteria for lesion characterisation. | | |
| • Be able to confidently exclude the presence of a sonographic lesion within the breast. | | |
| • Be able to write a detailed report of the ultrasound findings with grading, differential diagnosis, conclusion and recommendation for further management. | | |
| • Understand the principle of Doppler ultrasound and its relevance to breast imaging. | | |
| • Recognise personal limitations and ask for more expert advice if required. | | |

## APPENDIX 7: BREAST ULTRASOUND TRAINING COMPETENCY ASSESSMENT SHEET

Trainee _____ Trainer _____

### Level 2

**After reaching competency at Level 1 practitioners may progress to Level 2. This involves a minimum of 1 scanning clinic session per week (at least 10 cases per week) for at least 3 months.**

**Competencies/skills to be acquired:**

| **Essential principles** | **Trainer Signature** | **Date** |
|---|---|---|
| • Perform fine needle aspiration cytology on abnormalities with correlation of results to imaging and pathology. If FNA is not standard procedure within the student should be familiar with the technique of its uses and limitations. | | |
| • Successfully perform ultrasound guided core biopsy with correlation of results to imaging and pathology. | | |
| • Perform ultrasound guided breast abscess aspiration. | | |
| • Perform ultrasound guided localisations pre-operatively, using both skin marking and wire insertion techniques. | | |
| • Perform ultrasound guided marker or coil insertion prior to neo-adjuvant chemotherapy. | | |
| • Accept referrals from level 1 practitioners | | |

### Level 3

| **Essential principles** | **Trainer Signature** | **Date** |
|---|---|---|
| • To accept referrals from level 1 and practitioners and undertake more ultrasound examinations. | | |
| • To be able to mentor and supervise practitioners at level 1 and 2. | | |
| • To understand and be familiar with vacuum assisted breast biopsy | | |
| • To conduct research. | | |
| • To teach U/S at all levels. | | |
| • To be aware of and pursue including Doppler and the use of intravascular contrast agents. | | |