Head and Neck Ultrasound Practice Standards

It is recommended that only those practitioners who are competent in full neck ultrasound assessment, e.g. the 7 sweep technique, should undertake head and neck/thyroid scanning. A technique such as the 7 sweeps has the advantages of being a reproducible standard and proficient teaching technique, discourages target scanning, follows the path of the surgical neck levels and reduces the possibility of missing additional findings.

Dependent on the service provided in local departments, there may be a role to distinguish levels of practice. Head and Neck scanning competencies could be organised into a tiered system; e.g. Levels I, II & III (based on *)

*https://www.rcr.ac.uk/system/files/publication/field_publication_files/bfcr173_ultrasound_training_med_surg.pdf

The table below suggests the levels and standards to be acquired at each stage.

Local agreement for standards of competency is necessary dependant on expertise and pathway provision. This table may be used as a template for protocols and a benchmark of standards.

Level I Standards to be aquired (will mainly be primary care referrals)	
General principles	Recognise relationship of ultrasound with alternative head and neck imaging modalities Accurately issue reports on US examination performed Be aware of own limitations and recognise when to refer for a level II/III opinion
Competencies to be acquired	**Knowledge Base** **Major Salivary Glands:** Perform a thorough ultrasound examination of the parotid, submandibular and sublingual salivary glands in different planes Recognise normal ultrasound anatomy and common normal variants Recognise features of salivary gland calculi and obstructive sialectasis/sialadenitis Identify the limitations of US in the assessment of calculi/salivary obstruction Recognise the features of benign salivary neoplasm Recognise when a salivary mass does not have typical features of benignity Recognise salivary abnormalities that require discussion with a level II/III head and neck practitioner **Cervical Lymph Nodes:** Understand the anatomical boundaries of the main cervical lymph node groups

	Perform a comprehensive lymph node examination of the main groups Recognise the normal ultrasound architecture of cervical lymph nodes Recognise typical features of reactive lymphadenopathy Recognise abnormal ultrasound architecture and key features of malignant lymphadenopathy **Major Vessels of the Neck:** Recognise normal ultrasound anatomy and common normal variants Recognise features of venous thrombosis **Thyroid:** Perform a thorough multiplane ultrasound examination of the thyroid gland Understand the scoring system used locally (preferably the 2014 BTA U scoring system**) for assessment and characterisation of thyroid nodules and the indications for specialist referrals **Guidelines for the management of thyroid cancer
Level II Standards to be aquired , in addition to level I expectations (mainly primary care referrals and non-complex secondary care referrals)	
General Principles	Recognise relationship of ultrasound with alternative head and neck imaging modalities Acuurately issue reports on US examination performed Be aware of own limitations and recognise when to refer for a level III opinion Audit of work
Competencies to be acquired	**Knowledge Base:** (in addition to level I expectations) Governance issues and recommendations Sectional and ultrasound anatomy Detailed understanding of cervical neck anatomy including Superficial muscles of the head and neck Lymph node territories/groups Salivary gland variants Iatrogenic: anatomical changes following surgical resection of primary tumour and neck node dissection. Post radiotherapy changes. Granulomatous tissue formation. Benign

	thyroid pathology including haemorrhagic/cystic degeneration, thyroiditis, ectopic thyroid. Malignant thyroid processes including differentiated thyroid carcinoma, poorly differentiated and anaplastic thyroid carcinoma, lymphoma and metastasis Parathyroid pathologies Major salivary gland abnormalities including size and position of ductal calculi, ranula/sialocele, auto-immune sialadenitis, lymphoepithelial cysts, benign and maligant tumours, intraparotid lymphadenopathy Cervical lymph nodes normal and abnormal, features of extracapsular disease spread, lymphadenitis, supperative lymphadenopathy and abscess formation Miscellaneous including: congenital neck abnormalities, epidermal inclusion cyst,nerve sheath tumours, masseter hypertropy
Level III Standards, in addition to level I and II expectations (referrals from all sources)	
General Principles	A more detailed understanding of head and neck imaging and pathology as detailed above, including understanding of head and neck oncology, thyroid oncology, current and developing surgical practices, head and neck radiotherapy and complex non-ultrasound imaging tecniques. Awareness of developments in head and neck ultrasound, including elastography and novel high-resolution techniques (e.g. intra-oral and intra-operative) Understanding of clinical examination techniques, interpretation of medical history and be able to triage effectively from this knowledge
Competencies to be acquired	A level III practitioner is likely to spend a significant amount of clinical time undertaking Head and Neck Ultrasound/Imaging, teaching, research and development and may be regarded as 'expert' in this area They will accept tertiary referrals from level I & II practitioners and will perform complex and specialised scans such as laryngeal restaging from ultrasound which cannot be achieved on CT or MRI in addition to ultrasound-guided invasive procedures They will be involved in mentorship and training of all levels They will be involved in local and regional MDTs They will be an essential resource for consultation on complex head and neck cases They will be able to refer to other imaging modalities and other investigations as required and make necessary referrals to medical collegues They will be an integral part of the interventional head and neck service