HONG KONG COLLEGE OF RADIOLOGISTS

Higher Training (Radiology)

Subspecialty Training in Thoracic Radiology

[This document should be read in conjunction with the ***General Guidelines on Higher Training (Radiology)***]

1. INTRODUCTION

1.1 Thoracic Radiology is a well-defined subspecialty of Radiology in which expertise in the radiological management and treatment of thoracic diseases is required.

1.2 The characteristics of this subspecialty are summarized below:

(a) It embraces all aspects of imaging although emphasis is placed on chest radiography and computed tomography (CT) of the thorax particularly high resolution CT (HRCT).

(b) It provides specific imaging support to the following groups of clinicians: respiratory physicians, cardio-thoracic surgeons, intensive care physicians and thoracic oncologists.

1.3 It is a category A subspecialty.

2. OBJECTIVES

The training should ensure that the trainee acquires:

2.1 Clinical and management skills relevant to Thoracic Radiology to enable him/her to discuss with clinical colleagues and to recommend the best choice of imaging modality.

2.2 A deeper knowledge of the radiological, pathological and clinical aspects of thoracic diseases

2.3 A clear understanding of the indications, contraindications and complications of radiological procedures relating to the thorax

2.4 Expertise in image guided biopsy of the lung (e.g. fine needle aspiration), pleural fluid aspiration, and drainage of empyema and pneumothorax

2.5 Case presentation skills

2.6 Reasonable amount of audit, analytical and research skills

3. TRAINING REQUIREMENTS

3.1 TRAINING CENTRE REQUIREMENTS

3.1.1 On-site access to helical/multi-detector computed tomography (MDCT) scanner.

3.1.2 Able to access other relevant investigations of thoracic diseases including ultrasound (US), nuclear medicine, PET/CT, angiography and magnetic resonance imaging (MRI). If the training centre is deficient in any of these modalities, the trainee can be attached to other training hospitals for appropriate experience.

3.1.3 Exposure to the following two clinical subspecialties must be available in the training program: (1) thoracic surgery, (2) respiratory medicine such as at regular clinico-radiological meetings or attachment to endoscopic units. Trainees are expected to communicate with the clinical colleagues to have better understanding of the imaging findings of different variety of thoracic diseases as well as role of radiology in patients' management plan. Trainees should document in the logbook the key imaging findings or radiological role in management plan of the patients discussed.

3.1.4 In addition, an intensive care unit should be present.

3.1.5 Availability of a thoracic oncology unit is advisable.

3.1.6 Provision of basic thoracic interventional procedures such as image guided FNAC of thoracic lesions (mediastinal / pleural / lung), empyema or lung abscess drainage, and aspiration of pleural effusion.

3.1.7 Some thoracic imaging or sophisticated interventional techniques are not commonly performed in daily clinical practice but are of emerging importance and of potential diagnostic or therapeutic value in certain clinical situations. Trainees are encouraged to observe or have hands-on experience of these procedures in training centres with relevant experience and expertise in place.
These include but are not limited to:

- MR techniques like DWI for nodal or mediastinal assessment
- Interventional techniques such as hookwire localization of lung lesions, superior vena cava or tracheal stenting, embolization of bronchial artery and pulmonary arteriovenous malformation, local ablative therapy for lung tumours.

3.1.8 Regular combined clinico-radiological meetings (which should include patho-radiological meeting).

3.2 TRAINER REQUIREMENTS

As specified in the General Guidelines on Higher Training (Radiology).

3.3 DURATION OF TRAINING

6 months of training is desirable, 3 months is acceptable.

3.4 DUTY SESSIONS

The trainee should participate in the following sessions of thoracic radiology:

(a) Plain film reporting - 1 session per week, with more than 50% of the films being from respiratory and/or cardiothoracic clinic.

(b) CT – 1-2 session(s) per week, no less than 6 sessions per month, with more than 50% of the cases in the session(s) being related to thoracic subspecialty.

(c) US - 1 session per week, including workload from US guided thoracic related interventional procedures like drainage of pleural fluid

(d) Thoracic IR (non-vascular e.g. CT/fluoroscopic guided FNA/biopsy of lung mass etc. or vascular e.g. bronchial arterial embolization, superior vena cava stenting etc.) – 1 session per week

(e) MRI - 2 sessions per month

(f) PET/CT- exposure to at least 20 examinations concerning thoracic diseases during 6-months' training (at least 10 cases for 3 months' training)

(g) Combined clinico-radiological meetings – once every 1-2 week(s)

3.5 MINIMUM NUMBER OF EXAMINATIONS REQUIRED

Examination/Procedure	***RIS Coding***	***Requirement***
Plain CXR reporting	1301	400
CT thorax	4201, 4202	300
(1) Lung cancer staging		70
(2) Characterization of lung nodules		50
(3) Suspected pulmonary embolism		10
(4) Emergency thoracic CT (aneurysm, chest trauma)		10
(5) Characterization of CXR abnormality		30
(6) Intrathoracic malignancy other than lung cancer		30
(7) HRCT including expiratory scans of the thorax :		
(a) Interstitial lung disease including emphysema		50
(b) Small and large airways disease (bronchiectasis, bronchiolitis obliterans, tracheal abnormalities)		50
Radionuclide imaging such as bone scan, V/Q scan & PET/CT	9P43 & 9C43 regional PET for solitary pulmonary nodule 9P44.09 & 9C44.09 whole body PET for lung cancer	30 (at least 20 from PET/CT studies)

Interventional procedures: (1) Image guided fine needle aspiration / biopsy of thoracic diseases (pleural / mediastinal / lung mass) (2) Imaging guided aspiration or drainage of pleural fluid, empyema or lung abscess	7103-7109 (XR guided, US guided or CT guided)	80 40 40

3.5.1 If adequate experience cannot be gained in one centre, attachment to other training centres will be necessary.

3.5.2 *Remarks:*

(a) Minor adjustment of the ratio of different categories of CT thorax performed in the training institute is acceptable according to different disease patterns seen in individual institute.

(b) On completion of 3 months of training, a trainee is expected to be able to evaluate pleural and chest wall abnormalities using ultrasound.

(c) The trainee should have a working knowledge of the following:

MRI of the thorax

Imaging of brachial plexus
Imaging of Pancoast tumour or other lung lesions
Imaging of central vessels (aorta- for chronic dissection/ aneurysm and pulmonary artery- for pulmonary embolism/ hypertension etc)
Imaging of mediastinum and chest wall diseases
Imaging of intrathoracic vascular abnormalities [arteriovenous malformation (AVM), pulmonary sequestration etc]
Imaging of intra-thoracic nodal disease

The above mentioned studies are desirable and should be recorded manually in the log book.

(d) Experience for the following techniques, which can also be gained with attachment to other institutions. These are preferred to be in the form of actual hands-on experience though experience in the form of an observer is also acceptable.

Embolization of bronchial artery
Embolization of AVM
Stenting of superior vena cava / tracheo-bronchial tree
Pulmonary / Thoracic aortic angiogram
Superior vena / upper limb cavagram

The above mentioned studies are desirable and should be recorded manually in the log book.

3.6 CLINICAL RADIOLOGICAL CONFERENCES AND OTHER MEETINGS

Please refer to the General Guidelines on Higher Training (Radiology).

3.7 PRESENTATIONS AND PUBLICATIONS

Please refer to the General Guidelines on Higher Training (Radiology).

3.8 OTHER REQUIREMENTS

3.8.1 Thoracic imaging related research or audit project (Optional).

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