

HONG KONG COLLEGE OF RADIOLOGISTS

GENERAL GUIDELINES ON BASIC TRAINING (RADIOLOGY)

1. General Aspects

1.1 In this document the following interpretation applies:

- "*Trainer*" = a Fellow of the Hong Kong College of Radiologists, or equivalent
- "*Trainee*" = a medical doctor registered as a trainee member with the Hong Kong College of Radiologists

1.2 **Objectives:** To provide supervised training aiming at

- (a) Comprehensive exposure to a broad spectrum of clinical specialties and the application of imaging modalities.
- (b) Acquisition of general radiological and radiation protection knowledge, skill and competence, with supervised responsibility for patient care.
- (c) A disciplined habit of reasoning and a logical approach to specific medical problems with respect to radiology.
- (d) Acquaintance with the updated practice and current literature on relevant subjects.
- (e) Ability to communicate with clinical colleagues and render appropriate recommendation on imaging investigation and patient management.
- (f) Ability to advise on the safest and most cost-effective means of arriving at a diagnosis, and to counsel against unnecessary imaging investigation.

1.3 This document will provide guidelines on the following:

- (a) Core knowledge
- (b) Training program
- (c) Training facilities
- (d) Radiology workload
- (e) Accountability

1.4 Hospitals to provide basic training must apply for accreditation by the College for evaluation including visitation to confirm that the training program, facilities, radiology workload and other aspects are appropriate.

1.5 Training accreditation is considered on the basis of standalone training hospital. A training hospital may be deficient in either clinical specialties (e.g. neurosurgery) or imaging modalities (e.g. nuclear medicine), but such deficiencies should only form a minor portion of the workload. The trainees in such hospital need to have complementary rotation to another hospital, which can compensate for the deficiencies.

2. Core Knowledge

2.1 Basic sciences:

- (a) Physical basis of image formation including conventional x-ray, computed tomography, radionuclide imaging, magnetic resonance, ultrasonography, and the principles of digital systems as applied to radiology
- (b) Medical physics
- (c) Radiation protection
- (d) Quality control
- (e) Anatomy, physiology and techniques related to radiological procedures
- (f) Pharmacology and application of drugs and contrast medium related to radiological procedures
- (g) Basic computer knowledge and applications
- (h) Basic biochemistry related to imaging
- (i) Professional attitude and medical ethics

2.2 Pathology and pathophysiology as related to diagnostic and interventional radiology.

2.3 Current clinical practice.

2.4 Clinical Radiology, including

- (a) Organ or system based specialties
- (b) Age based specialties
- (c) Common interventional radiology procedures
- (d) Emergency radiology service

2.5 Medico-legal implications of radiological practice.

3. Training Program

3.1 The College organizes centralized Part I and Part II training courses, which should be attended by registered trainees.

3.2 The training department should provide relevant teaching in radiography, radiological anatomy & techniques, and clinical radiology to complement the centralized courses.

3.3 Hands on practical training for professional skill should be provided at each training department.

3.4 The trainer:trainee ratio should preferably be 1:1, and not worse than 1:2.

- 3.5 It is recommended that a nominated tutor should provide personal guidance and continuous assessment for a trainee.
- 3.6 Training logbooks are provided to trainees to record training activities received by them.
- 3.7 Plain film interpretation is an important facet of training. Supervised reporting of plain films catered to individual trainee for a reasonable period is advisable.
- 3.8 Tutorial system should be in place and is preferably year round instead of solely preparatory for examinations.
- 3.9 Clinico-Radiological Conferences (CRC)
- (a) Attendance of CRC is an important aspect of training in clinical management of clinical problems: *Attendance of at least 1 CRC per week.*
 - (b) Case presentation by trainee provides good training.
 - (c) Trainees are encouraged to attend CRC and the training department may take note of this point in the scheduling of the CRC.
 - (d) CRC attendance and case presentation should be recorded in the logbooks.
 - (e) CRC should take place in an environment that encourages the interchange of knowledge and experience among the participating disciplines.
- 3.10 On-call duties are important in the training of emergency imaging management.
- 3.11 Angiography and interventional radiology, being invasive, may be observed or assisted rather than independently performed at this stage. Exposure however is necessary.
- 3.12 Regular interaction between trainee and immediate supervisor is essential to prompt timely modification of individual training program. This should be documented at regular intervals in the trainee's logbook, and significant events should be brought to the attention of the College.
- 3.13 There must be regular written evaluation of the trainees, to verify that appropriate training has been undertaken during the specified period under the supervision of trainers, and to evaluate the knowledge gained and the level achieved.
- 3.14 The following are some of the measures of the quality of a training program:
- (a) performance of a department's trainees in the College examinations
 - (b) research projects
 - (c) publication in professional literature
 - (d) lectures and presentation at local, regional or international professional

conventions

- (e) contribution to College, regional or international professional activities
- (f) output of radiologists subsequently becoming consultants or senior radiologists in the territory

3.15 Rotation of trainees among training departments is advisable, to broaden the clinical exposure of the trainees.

4. Training Facilities

4.1 The hospital administration should be supportive of training in Radiology.

4.2 A comprehensive scope of clinical services is available in the hospital.

4.3 A full range of imaging modalities is available in the hospital.

4.4 The training department must provide adequate space, equipment and other pertinent facilities to ensure an effective educational experience for the trainees in Radiology, including

- (a) Departmental library with current books and journals on Radiology, readily available during off-hours and weekends.
- (b) Radiology image / film museum, and related training materials like videotapes, CDR, slides, computer programs etc. The teaching file should be indexed, coded and currently maintained.
- (c) Study room.
- (d) Internet access to online radiological resources such as journals, image libraries & case studies.

4.5 The trainees must have ready access to a major medical library.

4.6 There should be ongoing research and teaching activities in a training department.

4.7 Medical physics support for the department, including

- (a) Radiation safety and protection
- (b) Equipment quality assurance

5. Radiology Workload

5.1 A minimum amount of regular workload is necessary for a trainee to be exposed to the spectrum of normal variants and pathology, and to have sufficient hands-on experience.

5.2 The minimum annual workload of a training hospital:

Modality	RIS Coding	No. of examinations
Plain radiographs	1101 – 1799	50,000
GI & other contrast studies	2101 – 2499	1,000
Ultrasonography	3101 – 3599	3,000
Mammography	5001 – 5099	500
Radionuclide imaging & PET	9001 – 9999 & 9P13 – 9PCT	500
Angiography & Interventional radiology	6101-7599	500
CT	4101 – 4499	7,000
MRI	8101 – 8699	2,500

5.3 The minimum workload of a trainee for the 3 years of basic radiology training:

Activity	RIS Coding	Requirement (No. of examinations)
Plain film reports	1101 – 1799	Total 3,000 (1,000 under supervision)
Special investigations		
Fluoroscopy , GI study & IVU	2101 – 2499	300
Ultrasonography	3101 – 3599	1,000
CT	4101 – 4499	1,500
MRI	8101 – 8699	300
Radionuclide Imaging & PET	9001 – 9999 & 9P13 – 9PCT	80
Angiogram & IR	6101 – 7599	60
Mammogram	5001 – 5099	40
Other investigations (e.g. sialogram, bronchogram)		<i>No minimum requirement</i>

5.4 A trainee is considered competent of independent performance of the following examinations/services, provided that ready access to specialist consultation is available if necessary, when he/she has prior experience of a prescribed number of examinations for that particular service, and is considered by his department to be competent of the job:

Examination/Service	Minimum number of examinations attained
Plain film reporting	1000
Ultrasonography	Abdomen & pelvis: 200 Deep vein thrombosis: 15 Obstetric ultrasound: 50 Gynecologic ultrasound: 30
CT scan	Brain CT: 80 Abdomen & pelvis CT: 90 Thoracic CT: 30
IVU & Fluoroscopy	50

A trainee will be directly supervised by a trainer when performing interventional radiology, MRI and nuclear medicine examination.

6. Accountability of the Training Department

6.1 It is advisable that the Training Supervisor is not the same person as the Administrative Head of the Department.

6.2 Accountability of the **Training Supervisor**:

- (a) To initiate application for training accreditation by the College, with submission of the required data.
- (b) To manage the training department and be responsible for the total supervised training provided in the department in accordance with the training regulations and guidelines.
- (c) To report immediately to the College any significant discrepancy from the status on accreditation, in respect of training manpower, facilities and workload that may have occurred or are expected to occur.
- (d) To initiate timely consultation with the College on matters related to training.
- (e) To advance the views of the College and to disseminate to the trainees relevant information from the College.
- (f) To facilitate the trainees to attend training and educational activities.
- (g) To provide annual return to the College on the status of trainers and trainees, and the assessment forms of the trainees in the department.
- (h) To meet the trainees regularly, to be able to evaluate and provide advice to the trainees in Radiology.

6.3 Accountability of the **Trainee**:

- (a) To register as a trainee with the College on entry into the training system.
- (b) To be aware of the scope, program, facilities, workload and other aspects of training required in Radiology.
- (c) To participate in the training courses organized by the College, and the

training activities held at the training department.

- (d) To participate in and contribute to scientific and other activities organized by the College.
- (e) To enter the training records in the logbooks regularly.
- (f) To interact with the trainers during the regular appraisal sessions.
- (g) To bring to the notice of the Training Supervisor, and if necessary the College, of any deficiency in the training program for improvement at the specific training department.
- (h) To prepare for the examinations and assessments of training at different levels.

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