HONG KONG COLLEGE OF RADIOLOGISTS

SPECIALTY TRAINING : NUCLEAR MEDICINE
TRAINING OBJECTIVES & REQUIREMENTS, EXAMINATION FORMAT, EXIT ASSESSMENT AND SYLLABUS

OBJECTIVES OF TRAINING

(A) *Basic Specialist Training*

1.0 To allow a medical graduate to acquire general nuclear medicine and radiation protection knowledge, skill and competence, with supervised responsibility for patient care.
2.0 To have a detailed knowledge of the basic sciences on which nuclear medicine is based, and a sound understanding of the nuclear medicine physics, radiopharmacy, anatomy and physiology.
3.0 To develop a disciplined habit of reasoning and a logical approach to specific medical problems with respect to nuclear medicine.
4.0 To appreciate the importance of nuclear medicine in the whole system of patient care and health.
5.0 To be conversant with the updated practice of nuclear medicine (both diagnostic and therapeutic applications) and current literature on relevant subjects.
6.0 To be able to communicate with clinical colleagues and render appropriate recommendation on nuclear medicine investigation and patient management.

(B) *Higher Specialist Training*

1.0 To be competent in the diagnostic, therapeutic and investigational uses of radionuclides required for independent practice in the specialty.
2.0 To be trained with initiation towards subspecialty development.
3.0 To be well versed in various imaging modalities to be an effective member of a team in the multidisciplinary approach on patient care.
4.0 To be capable of promoting efficient utilization of available nuclear medicine services at different settings.
5.0 To be trained with the appropriate professional attitude and motivated towards continuous professional development.

TRAINING REQUIREMENTS

(A) *Entry Requirement & Duration of Training*

1.0 All trainees need to be fully registered with The Medical Council of Hong Kong and must enrol with the Hong Kong College of Radiologists at the commencement of their training.
2.0 The duration of training shall last for a minimum of 6 years with 4 years of Basic Specialist Training including a minimum of 3 years of full time nuclear medicine training and a 2 years of Higher Specialist Training in accredited Nuclear Medicine training centres.

(B) *Basic Specialist Training*

1.0 At least one year of full time post-registration clinical experience outside nuclear medicine is required, inclusive of two 6-month periods of exposure to Radiology and another clinical specialty respectively. Flexibility in timing of outside clinical experience is allowed.

1.1 Centralized structured training courses on basic nuclear medicine and science and on clinical nuclear medicine are organized, which should be attended by registered trainees. A minimum of 80% attendance on the structured training courses will be required before trainees are allowed to attempt the respective Part I & Part II Examinations.

2.0 Basic Nuclear Medicine and Science training

2.1 The Basic Nuclear Medicine and Science training programme should provide educational experience in:

(a) *Physical Science*: structure of matter, modes of radioactive decay and particle and photon emissions, and interactions of radiation with matter.

(b) *Instrumentation:* nuclear medicine instrumentation with special emphasis on the gamma scintillation cameras, PET/CT scanners, radiation detector collimation, associated electronic instruments and computers, and image production and display.

(c) *Mathematics, Statistics, and Computer Sciences* including probability distributions, medical decision making, basic aspects of computer structure and function, programming and processing.

(d) *Radiation Biology and Protection:* biological effects of ionizing radiation, means of reducing radiation exposure, calculation of the radiation dose, evaluation of radiation overexposure, medical management and disposal of radioactive substances and establishment of radiation safety programmes.

(e) *Radiopharmaceuticals:* production of radionuclides, principles of cyclotron, radiochemistry, pharmacokinetics and formation of radiopharmaceuticals.

(f) *Diagnostic Uses of Radionuclides:* clinical indications, technical performance and interpretation of in vivo imaging and function studies using radionuclides; use of scintillation cameras and external detectors; physiologic gating techniques; patient monitoring during intervention studies; and an understanding of the relationship between nuclear medicine procedures and other pertinent imaging modalities such as computed tomography, ultrasonography, and magnetic resonance imaging.

(g) *Principles of Therapeutic Uses of Radionuclides:* patient selection, dose administration, including dosimetry and specific applications.

(h) *Anatomy and Physiology:* the trainee is required to be familiar with the basic anatomy and physiology relevant to common nuclear medicine imaging examinations. There should be a clear understanding of topographic and cross-sectional anatomy as displayed by SPECT and PET imaging. Knowledge of normal variation in anatomy will also be expected.

2.2 Structured courses on Basic Nuclear Medicine, Medical Physics & Statistics and Radiopharmacy are provided for the trainees.

2.3 The Part I Fellowship Examination of College may be applied at the end of the minimum period of 18 months accredited training with a minimum of one year of nuclear medicine training and after completing the respective basic nuclear medicine

and science courses organized.

3.0 Clinical Nuclear Medicine training

3.1 This will lead up to the Part II Fellowship Examination of the College.

3.2 For this stage of training, there should be general knowledge of current clinical medicine, surgery and pathology, especially in relation to nuclear medicine.

3.3 There should be ample opportunity to attain competence in correlating the patient's problem with optimum selection of nuclear medicine studies, performing these studies, interpreting the information obtained, correlating this information with other diagnostic studies and following up patients receiving radionuclide diagnoses.

3.4 The trainee should directly participate in the performance of a sufficient number and wide variety of studies (imaging, non-imaging and therapy) under adequate staff supervision.

3.5 A general awareness of current trend is desirable, including updated nuclear medicine and radiological literature and relevant radiation protection measures.

3.6 During the whole period of clinical training, emphasis would be put on the cultivation of a high level of professional conduct and ethics. Communication skills would be developed to ensure sound communication among professionals and good patient-doctor relationship.

3.7 After a minimum of 3 years of nuclear medicine training plus at least 1 year of clinical experience outside Nuclear Medicine, inclusive of two 6-month periods of exposure to Radiology and another clinical specialty respectively, trainees are allowed to attempt the Part II Fellowship Examination of College, provided that the trainee has already passed the Part I Fellowship Examination of College.

(C) *Higher Specialist Training*

1.0 This stage of training will comprise the final two years of specialist training after passing the Final (Part II) Fellowship Examination. Emphasis will be made on providing the trainee with opportunities for independent thinking and action through a system-based structured programme.

2.0 During this stage, the trainee will have practical experience and increased responsibility in various disciplines of nuclear medicine.

3.0 There should be in-depth knowledge and application of general nuclear medicine. Subspecialty development is also encouraged, with training and interest in more than one subspecialty.

4.0 All training programs (general or subspecialty training) should have prior accreditation by the College.

5.0 The trainee is required to take active participation in intra- and inter-departmental meetings.

6.0 **During the entire period of Basic and Higher Specialist Training, trainees should participate actively in research activities.**

1) **At least one project** must be accepted at College scientific meetings, or regional / international scientific conferences with the trainee as the oral presenter or first author of a poster presentation; and

2) **At least one radiological / oncological / nuclear medicine article** with the trainee as the first author, must be published / accepted for publication in the Journal of the College or other indexed medical journals.

Training centers should facilitate trainees to participate in research projects.

7.0 Management training would be an important feature, with participation in planning in delivery of professional service, departmental meetings, quality assurance programmes, audits, mediolegal responsibilities and resource allocation. Attendance of management courses would also be encouraged.

EXAMINATION FORMAT

1.0 The College Examination for Basic Specialist Training will be in two parts.

2.0 *Format of First (Part I) Examination*

2.1 Part I Examination consists of written papers (multiple choice questions) and an oral examination.

2.2 Two multiple choice question papers, one of which will cover topics in Physics, whilst the rest will be devoted to questions on Anatomy and Physiology, Radiopharmacy, Procedures and Techniques of nuclear medicine studies.

2.3 An oral examination of 1 hour duration consisting of two 30-minute vivas: one with a pair of nuclear medicine physicians, and one with a nuclear medicine physician plus a physicist.

2.4 Unsuccessful candidates in any component of the Part I Fellowship Examination will be required to re-sit all two components.

3.0 *Format of Final (Part II) Examination*

3.1 Part II Examination consists of written papers (Single Best Answer paper), a reporting session and an oral examination.

3.2 Two Single Best Answer (SBA) papers.

3.2.1 Questions will cover all the major subspecialties included in the syllabus.

3.2.2 Questions will also be set on clinical subjects, physiology and pathology, though within the general framework of nuclear medicine.

3.2.3 Relevant aspects of basic sciences (e.g. physics, radiopharmacy and equipment), physiology, biochemistry, anatomy and techniques will be included in the context of nuclear medicine practice.

3.3 A reporting session of 1-hour duration.

3.3.1 In the reporting session of 1-hour duration, candidates are required to provide reports on 8 clinical cases. Each case comprises images and results of data analysis with brief clinical details.

3.3.2 The cases are chosen so as to include a selection of the main subspecialties of nuclear medicine. Cases are not of equal difficulty, and candidates should ensure that they allow sufficient time to report each case adequately.

3.3.3 Reports must be brief and relevant, and laid out to include the relevant positive and negative findings, an interpretation and conclusion.

3.3.4 Recommendations for further appropriate investigation may be made, but the reasons for such suggestions must be clearly stated.

3.4 An oral examination of 1-hour duration consisting of two 30-minute vivas each with a different pair of examiners.

3.4.1 During each of the two vivas a wide range of material of varying complexity will be shown. A higher level of performance will be expected in interpreting the common and routine examinations than will be the case with the highly specialized investigations.

3.4.2 Candidates will be given the opportunity to demonstrate their powers of observation and deduction, and a logical and informed approach to image interpretation and data analysis. There should be a clear ability to discuss the merits, relevance, and role of techniques which might assist in further investigation of diagnostic problems will be expected.

3.5 Unsuccessful candidates in any component of the Part II Fellowship Examination will

be required to re-sit all three components.

4.0 *Review of Performance at Examinations*

4.1 Candidates who fail the examination will be informed of their performance at each paper/session. It is expected that counselling will be provided by the designated training officer at each training centre.

4.2 After 2 unsuccessful attempts at Part II Examination, a candidate's performance will be reviewed by the Chairman of the Education Committee, one examiner of the examination together with the trainee and the respective supervisor, to advise on the required improvement areas and remedial actions.

4.3 The Review Committee of the College will consider queries and appeals.

EXIT ASSESSMENT FOR COLLEGE FELLOWSHIP

1.0 After completion of the required period of Higher Specialist Training, a trainee can apply for consideration of the Fellowship of the College.

2.0 Exit Assessment exercises are conducted by the College twice a year, normally in January and July.

3.0 A panel of assessors comprising the following members would carry out a formal assessment of the trainee's completion of training:

(i) The Chairman of the Education Committee of the College.

(ii) Two other distinguished members of the trainee's profession, who should NOT be the trainee's supervisors, appointed by the Education Committee and approved by the Council.

4.0 The procedure of assessment would include:

(i) Scrutiny of the training records of the trainee for completeness of training.

(ii) Appreciation of the regular continuous appraisal reports of the respective supervisor.

(iii) Further supportive documents may need to be furnished by the trainee or the respective training centre on request.

(iv) A 40-minute oral assessment of the trainee by the panel of assessors will be held to evaluate the trainee's professional attitude, ability in communication skill, solving clinical or management issues and appreciation of radiology & nuclear medicine literature.

5.0 After an unsuccessful attempt at Exit Assessment, a candidate's performance will be reviewed by the Chairman of the Education Committee, one assessor of the Panel together with the trainee and the respective supervisor, to advise on the required improvement areas and remedial actions.

SYLLABUS

1.0 FIRST (PART I) EXAMINATION:

1.1 *ANATOMY and PHYSIOLOGY*

1.1.1 The candidate should be familiar with the basic anatomy, biochemistry and physiology relevant to all the common scintigraphic examinations, and the cross-sectional anatomy in the axial, coronal, sagittal and, where appropriate, oblique planes, as displayed in SPECT and PET imaging. A knowledge of normal anatomical variations will be expected. The formal teaching course will build on the basic science knowledge already expected of a trainee.

1.1.2 Anatomy and physiology as shown by nuclear medicine studies include the following systems:

The musculoskeletal system
The respiratory system
The gastrointestinal and hepatobiliary system
The genitourinary system
The cardiovascular system
The haematological and lymphatic system
The central nervous system
The endocrine system

1.2 *RADIOPHARMACEUTICALS*

1.2.1 Principles of radiochemistry and radiopharmacy.

1.2.2 Production, pharmacokinetics, dosage (including doses for children) and contraindications of radiopharmaceuticals.

1.2.3 Relative advantages and choice of the different types of agents.

1.2.4 Side effects, prevention and treatment of adverse reactions.

1.2.5 Quality assurance.

1.3 *DRUGS*

Knowledge is expected of those drugs commonly used in nuclear medicine practice, including their dosage and side effects.

1.4 *INDICATIONS, PROCEDURES AND TECHNIQUES*

1.4.1 Candidates will be expected to demonstrate a knowledge of the standard procedures and positioning relating to various nuclear medicine procedures and organ systems, including the underlying basic principles. Candidates should, therefore, be able to give practical advice on improving the quality of the film. A knowledge of infrequently

used projections will not be expected.

1.4.2 Knowledge of and practical familiarity with the following will be expected:

- Positioning of patients and detector. The use of immobilizing devices and protective devices. Detection and correction of errors in data acquisition and positioning.

- Data acquisitions: frame mode and list mode; dynamic and static; gated; SPECT and PET.

- The principal indications and contra-indications of common nuclear medicine studies.

- Patient preparation.

- Principal complications and their treatment.

1.5 *PHYSICS*

1.5.1 General Remarks

(A) A basic knowledge of physics is assumed.

(B) The whole of the syllabus should be covered in approximately 45 hours of formal teaching.

1.5.2 Scope of the Syllabus

(A) BASIC ATOMIC and NUCLEAR PHYSICS

(i) Structure of the atom and nucleus, terminology and notation, binding energy, atomic and nuclear emissions.
(ii) Periodic table, radionuclide chart, isotopes and characteristics of stable nuclei.

(B) IONIZING RADIATION and RADIOACTIVE DECAY

(i) Types of ionizing radiation and their properties.
(ii) Modes of decay including alpha decay, beta decay, isomeric transition, internal conversion and electron capture.
(iii) Principles of exponential decay, decay constant, half-life (physical, biological and effective), mean life, specific activity and units of activity.
(iv) Interaction of radiation with matter: coherent, photoelectric, Compton scatter and pair production processes; concepts of attenuation, absorption and scatter.

(C) MATHEMATICS and STATISTICS for NUCLEAR MEDICINE

(i) Convolution and modulation transfer function.
(ii) Tracer theory and compartmental analysis.
(iii) Types of measurement errors.

(iv) Basic statistics, receiver operating characteristic (ROC) curves and nuclear counting statistics.

(D) COMPUTER APPLICATIONS in NUCLEAR MEDICINE

(i) Basic knowledge of computer.
(ii) Computer systems in Nuclear Medicine.

(E) RADIATION MEASUREMENT and INSTRUMENTATION

(i) Radiation detectors; operation principles and characteristics.
(ii) Pulse height analyzer, multichannel analyzer, scaler and ratemeter.
(iii) Counting systems: scintillation probe, well counter, liquid scintillation counter, dose calibrator and whole body counter.

(F) IMAGING SYSTEMS

(i) Principles and functions of
  (a) Gamma camera
  (b) Single photon emission computed tomography (SPECT)
  (c) Positron emission tomography (PET)
  (d) Bone densitometer
(ii) Quality assurance.

(G) RADIOPHARMACEUTICALS

(i) Desirable characteristics, mechanisms of localization and choice of radiopharmaceuticals for imaging.
(ii) Radionuclide production and principle of generator systems.
(iii) Preparation of radiopharmaceuticals, design and operation of laboratories.
(iv) Therapeutic use of radionuclides.
(v) Quality assurance.

(H) DOSIMETRY

Internal radiation dosimetry: calculation of dose, dose models and dose estimation techniques.

(I) RADIATION PROTECTION

(i) Statutory responsibilities: an appreciation of relevant legislation and Codes of Practice.
(ii) The content of the “core of knowledge” as specified by the current Radiation Ordinance, the ICRP and other international radiation protection standards and recommendations.
(iii) Genetic and somatic effects of ionizing radiations.
(iv) Relative risks of ionizing radiations.
(v) The principles of radiation protection, safe handling of radioactive materials, decontamination procedures, transport and storage of radioactive materials and disposal of radioactive waste.

(vi) Radiation monitoring.

(vii) Comprehension of the practical measures required in a department of Nuclear Medicine.

2.0 FINAL (PART II) EXAMINATION:

2.1 *General remarks*

2.1.1 Candidates are expected to keep abreast with the most recent advances in nuclear medicine.

2.1.2 Clinical skills necessary to supervise and administer the various physical, physiological and pharmacological interventions associated with practice of nuclear medicine are expected.

2.1.3 Correlation with other imaging and diagnostic modalities as deemed relevant to the practice of nuclear medicine is expected.

2.1.4 The applicability of SPECT and PET technique should be considered in all situations.

2.1.5 Integration of physics, instrumentation, dosimetry, anatomy, biochemistry and pathophysiology relevant to or specific to each individual nuclear medicine study is expected.

2.1.6 Principle and methodology of data acquisition, analysis and interpretation of each individual procedure are expected.

2.2 *Central Nervous System:*

2.2.1 Radiopharmaceuticals

2.2.2 Clinical Applications:

(i) Four basic categories:
   a. Cerebral blood flow
   b. Neuroreceptor imaging
   c. Metabolism
   d. CSF flow

(ii) Specific indications:
   a. Cerebrovascular disorders: carotid stenosis and occlusion; stroke; subarachnoid haemorrhage; pharmacological intervention (e.g. acetazolamide).
   b. Dementia, movement disorders and psychiatric disorders: Dementia including Alzheimer's disease and AIDS dementia; Parkinsonism; Hungtington chorea; schizophrenia.
   c. Brain tumours: Grading of tumours; differentiation between viable tumour and radiation; necrosis/edema.
   d. Epilepsy.
   e. Evaluation of hydrocephalus, shunt patency and CSF leakage.

2.3 *Cardiovascular System:*

2.3.1 Radiopharmaceuticals

2.3.2 Clinical Applications:

(i) Myocardial perfusion, viability and infarct-avid imaging:
   a. Planar vs SPECT (gated vs non-gated)
   b. PET
   c. Methods of quantitation including Bull's eye display
   d. Pharmacological intervention (e.g. dipyridamole, adenosine)

(ii) Myocardial function imaging:
   a. First-pass vs gated blood pool imaging
   b. Rest vs stress study
   c. Shunt quantitation

(iii) Myocardial receptor imaging

(iv) Myocardial metabolism imaging

(v) Venography (flow and blood pool venography)

(vi) Thrombus imaging

2.4 *Respiratory System:*

2.4.1 Radiopharmaceuticals

2.4.2 Clinical Applications:

(i) Pulmonary embolic disease: Various diagnostic criteria.

(ii) Non-embolic disease

2.5 *Lymphoscintigraphy:*

2.5.1 Radiopharmaceuticals

2.5.2 Clinical Applications:

(i) Staging of tumour

(ii) Evaluation of lymphoedema

(iii) Detection of sentinal node

2.6 *Hepatobiliary System:*

2.6.1 Radiopharmaceuticals

2.6.2 Clinical Applications:

(i) Acute cholecystitis

(ii) Biliary dyskinesis

(iii) Neonatal jaundice

(iv) Biliary tract obstruction

(v) Congenital disorders

(vi) Post-operative evaluation

(vii) Duodenogastric bile reflux and afferent loop obstruction

(viii) Liver transplant

2.7 *Liver and Spleen:*

2.7.1 Radiopharmaceuticals

2.7.2 Clinical Applications:

(i) Evaluation of abdominal mass.
(ii) Evaluation of focal and diffuse hepatic diseases.
(iii) Detection and follow up of liver metastasis.
(iv) Detection and follow up of abdominal, hepatic and splenic trauma.
(v) Detection of ectopic splenic tissue (post-splenectomy).
(vi) Functional hyposplenism.

2.8 *Gastrointestinal:*

2.8.1 Radiopharmaceuticals

2.8.2 Clinical Applications:

(i) Salivary scintigraphy :
  a. Evaluation of salivary flow (e.g. Sjogren syndrome).
  b. Evaluation of salivary gland mass including tumour or abscess.
(ii) Oesophageal transit and reflux studies :
  a. Evaluation of the cause and follow up of dysphagia.
  b. Detection and follow up gastroesophageal reflux.
(iii) Gastric emptying including both solid and liquid phases :
  Detection and follow up patients with delayed gastric emptying.
(iv) Localization of ectopic gastric mucosa.
(v) Detection and localization of lower gastrointestinal bleeding using Tc-99m red blood cells or colloid.
(vi) Evaluation of abdominal sepsis.
(vii) Gastrointestinal absorption and loss studies including quantitative methods
  a. Protein loss
  b. Blood loss
  c. B12 absorption (Schilling test)
  d. Iron absorption
  e. Various breath tests

2.9 *Genitourinary system:*

2.9.1 Radiopharmaceuticals

2.9.2 Clinical Applications:

(i) Differential renal function
(ii) Location, shape, number of kidneys
(iii) Detection and follow up of renal scars
(iv) Evaluation of hydronephrosis
(v) Renovascular hypertension
(vi) Evaluation of renal mass
(vii) Urinary tract infection
(viii) Renal transplant evaluation
(ix) Evaluation of vesico-ureteric reflux
(x) Measurement of GFR and ERPF
(xi) Testicular imaging

2.10 *Musculoskeletal System:*

2.10.1 Radiopharmaceuticals

2.10.2 Clinical Applications:

(i) Infection
(ii) Inflammatory disorder
(iii) Neoplasm (staging and follow up)
(iv) Trauma
(v) Avascular necrosis
(vi) Evaluation of prosthesis
(vii) Metabolic bone disease
(viii) Evaluation of bone and joint pain
(ix) Bone density measurement using densitometer including its application in osteoporosis

2.11 *Endocrinology:*

2.11.1 Radiopharmaceuticals

2.11.2 Clinical Applications:

(i) Thyroid:
    a. Evaluation of the causes of hyperthyroidism
    b. Evaluation of goitre or thyroid nodule
    c. Neonatal hypothyroidism
    d. Localization of ectopic thyroid tissue
    e. Hormonal dysgenesis or organification defects
    f. Thyroid cancer
(ii) Parathyroid:
    a. Parathyroid adenoma and hyperplasia
(iii) Adrenal cortex and medulla:
    a. Cushing syndrome
    b. Hyperaldosteronism
    c. Phaeochromocytoma
    d. Adrenal incidentoma

2.12 *Infection:*

2.12.1 Radiopharmaceuticals

2.12.2 Clinical Applications:

(i) Fever of unknown origin
(ii) Bone and joint infection

(iii) Inflammatory bowel diseases
(iv) Graft and prosthesis infection

2.13 *Haematology:*

2.13.1 Radiopharmaceuticals

2.13.2 Clinical Applications:
(i) Measurement of red cell volume, plasma volume and blood volume
(ii) Red cell and platelet survival
(iii) Ferrokinetics
(iv) Bone marrow imaging

2.14 *Oncology:*

2.14.1 Radiopharmaceuticals

2.14.2 Clinical Applications:
(i) Diagnosis and staging of tumours
(ii) Monitor response to treatment
(iii) Radionuclide therapy

2.15 *Radionuclide Therapy:*

2.15.1 Radiopharmaceuticals

2.15.2 Clinical Applications:
(i) Hyperthyroidism
(ii) Thyroid carcinoma
(iii) Phaeochromocytoma, neuroblastoma and carcinoid
(iv) Polycythemia rubra vera
(v) Bone pain due to skeletal metastasis
(vi) Radiation synovectomy
(vii) Malignant pleural effusion or ascities

3.0 <u>HIGHER TRAINING PRIOR TO EXIT ASSESSMENT</u>

3.1 The two years of Higher Training should consist of Higher General Nuclear Medicine Training, Subspecialty Training (this refers to training for knowledge and skill in a specialty, and not total training for accreditation in that subspecialty), and training in relevant attributes.

3.2 For a broad knowledge-based exposure, the two years of training should consist of:
3.2.1 Minimum of 12 months fulltime General Nuclear Medicine;
3.2.2 Minimum of 6 months in one subspecialty subject;
3.2.3 Remaining period: minimum of 6 months in another subspecialty subject or minimum of 3 months for each of other two subspecialty subjects.

3.3 Higher General Nuclear Medicine Training:
3.3.1 The program should differ from Basic General Nuclear Medicine Training, with emphasis on independent performance and supervising responsibility.
3.3.2 The program should be arranged with designated assignments and rotations.
3.3.3 Teaching activities (to clinicians, younger trainee nuclear medicine physicians or radiologists, radiographers, nurses and medical students) to attain in-depth knowledge of a subject and to improve on presentation skills.

3.3.4 Management of and contribution to film museum and teaching files.
3.3.5 Audit and quality assurance activities.
3.3.6 Academic activities: research techniques, presentation skills, literature review. (Please refer to P.3: Training Requirements – (C) Higher Specialist Training – Item 6.0)
3.3.7 Nurture of professional attitude (ethical standards, legal responsibility, professional image, contribution towards professional organizations and activities, co-ordination with clinical colleagues for better healthcare).
3.3.8 Administrative skills and practice.

3.4 Subspecialty Training:
3.4.1 Structured program conforming to the College guidelines for the specific subspecialty, including the defined minimum workload.
3.4.2 Four or more service sessions weekly specific for the subspecialty is advisable.
3.4.3 If certain procedures are not available at the specific hospital, sessional attachment to another hospital is advisable.
3.4.4 Two or more trainers are desirable for each subspecialty.
3.4.5 A trainer of a subspecialty program should have previous training in the subspecialty, reasonable years of experience in the subspecialty, major portion of clinical practice being in the subspecialty, related publications and presentations, and regular attendance of related subspecialty conferences in recent years.
3.4.6 Subspecialty related clinical conference should be available on a regular basis, with presentation by the trainee.

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