

Hong Kong College of Paediatricians  
香港兒科醫學院



**GUIDELINES**  
**ON**  
**POSTGRADUATE TRAINING AND ACCREDITATION**

Revised March 2007



# HONG KONG COLLEGE OF PAEDIATRICIANS

## TRAINING IN GENERAL PAEDIATRICS AND PAEDIATRIC SUBSPECIALTIES

<b>Contents:</b>	<b>Pages</b>
I. Foreword	5
II. General Educational Objectives	7
III. Requirements for Admission into the Training Programme	8
IV. The Training Programme	
A. <i>The Basic Training</i>	9
B. <i>Intermediate Examination</i>	9
C. <i>Admission to Membership</i>	10
D. <i>The Higher Training</i>	10
E. <i>Assessment of Higher Training</i>	10
F. <i>Elevation to Fellowship</i>	10
G. <i>Mechanism for Appeal</i>	11
V. Recognition of Training outside Hong Kong	11
VI. Objectives of the Basic Training Programme	11
VII. Objectives of the Higher Training Programme	18
VIII. Application for Recognition of a New Subspecialty	19
IX. Appendices	
A. <i>Syllabus for Training</i> <i>General Paediatrics</i>	22
Paediatric Subspecialties	
1. Adolescent Medicine	29
2. Cardiology	35

	<b>Pages</b>
3. Clinical Genetics	41
4. Endocrinology and Metabolism	45
5. Gastroenterology and Hepatology	49
6. Haematology and Oncology	53
7. Immunology/Rheumatology/Allergy	59
8. Infectious Diseases	63
9. Intensive Care	68
10. Neonatology	73
11. Nephrology	79
12. Neurology and Developmental Paediatrics	83
13. Respiratory Medicine	89
Other Related Disciplines	
14. Clinical Pharmacology	93
15. Dermatology	94
16. Ophthalmology	95
17. Otorhinolaryngology	96
<i>B. Accreditation of Training</i>	97
<i>C. MRCPCH (Intermediate) Examination</i>	125
<i>D. Assessment of Higher Training</i>	127
X. Acknowledgement	128

## **I. Foreword**

The Hong Kong College of Paediatricians was formed in 1991. As a member college of the Hong Kong Academy of Medicine, it has been given the statutory authority to oversee the training and accreditation of paediatricians in Hong Kong. The Hong Kong Academy of Medicine requires the College to undertake the organisation and supervision of the training of paediatricians and to conduct examination. The College, in turn, has to accredit the various units for training purposes and to assess and approve the individual training programme for each trainee.

The first College document on the paediatric training curriculum “Educational Objectives in Paediatric Training” was published in July 1988. This document was extensively modified and expanded resulting in the publication of the “Guidelines on Postgraduate Training and Accreditation of the Hong Kong College of Paediatricians” in June 1995. Since this time, there have been significant changes in the training requirements and the criteria of accreditation of training. In addition, there is also an extensive change in the format of the conjoint Intermediate Examination of the Hong Kong College of Paediatricians and the Membership Examination of the Royal College of Paediatrics and Child Health of the United Kingdom. A document entitled “A Framework of Competences for Basic Specialist Training in Paediatrics” was published by the Royal College of Paediatrics and Child Health in October 2004. It was decided by the Education Committee of the College and endorsed by the Council that we used this document as a reference for revising the curriculum of the Basic Paediatric Training Programme of our College. We have highlighted local training requirements in knowledge and skills that will need to be fulfilled in addition to those mentioned in the United Kingdom publication. A lot of the core knowledge, skills and attitudes mentioned in the previous editions are still relevant and have been retained in this revised document. In the revised guidelines, there is greater emphasis on good effective communication with patients, parents and professional colleagues, multi-disciplinary team work, behavioural paediatrics, paediatric emergencies, provision of care to children with special needs and child advocacy.

Another development in Education and Accreditation in our College has been the establishment of the Accreditation Guidelines for the development of a Training Programme for a Paediatric Subspecialty. The revised Guidelines on Postgraduate Paediatric Basic and Higher Training and Accreditation only refers to the curriculum and accreditation of the 3-year Basic and 3-year Higher Training Programme in General Paediatrics. During the 3-year Basic Training Programme, a trainee should preferably spend no more than three months and definitely no more than six months in any

paediatric subspecialty. During the 3-year Higher Training Programme, a trainee should spend at least 2 years in hospital based training of which 1 year must be in training in general paediatrics with acute admissions of children of all age groups and with different diseases. Not more than 12 months can be spent in any paediatric subspecialty during the 3-year Higher Training Programme. More detailed information can be found in the section on Accreditation of Training in this revised document.

The competences gained in the Basic Training Programme will form the bases for the progression into Higher Paediatric Training and Subspecialty Paediatric Training in future. The assessment of the competences gained during the Basic and Higher Training Programme is achieved by continuous work-based assessment of progress by the trainers every six months, the Intermediate Examination and Exit Assessment at the end of the Basic and Higher Training Programme respectively.

The structured training programme in Hong Kong for a prospective paediatrician consists of a minimum of 3 years of basic training, an Intermediate Examination, followed by at least 3 years of higher training in general paediatrics and a final Exit Assessment. When all these have been completed successfully, subject to approval by the Council, the trainee will become a Fellow of the College and will be eligible for recommendation to be a Fellow of the Hong Kong Academy of Medicine. A Fellow of the Hong Kong Academy of Medicine will be eligible for listing in the Specialist Register of the Medical Council of Hong Kong.

This guideline is intended primarily to provide information on paediatric training and accreditation for the trainers and trainees in Hong Kong. It may also be used as a guide for overseas graduates who wish to take up paediatric training in Hong Kong and for those who have had training elsewhere and would like to apply for recognition and accreditation of paediatric training in order to work in Hong Kong. The contents of this guideline will be modified from time to time. The syllabus will be modified as new developments take place. It is, therefore, recommended that only the most up-to-date version be referred to. This can be found on the website of the Hong Kong College of Paediatricians at [www.paediatrician.org.hk](http://www.paediatrician.org.hk)

The award of Fellowship should not be regarded as an end in itself. All Fellows and in future Members and Associates of our College should commit themselves to continuing medical education (CME) and continuous professional development (CPD) as long as they are still in active practice. The purpose of CME/CPD is to keep Fellows informed and up-to-date on knowledge and developments in paediatrics and to maintain a high standard of professional practice. In accordance with the CME/CPD guidelines of

the Hong Kong Academy of Medicine, each Fellow must fulfil the minimum of 90 CME/CPD points by the end of each 3-year CME/CPD cycle. This requirement will be revised from time to time. Failure to comply with CME/CPD requirement will result in suspension of Fellowship of the Academy and removal of the name of the Fellow from the Specialist Register of the Medical Council of Hong Kong. The CME/CPD Guidelines for the Hong Kong College of Paediatricians can be viewed on our website [www.paediatrician.org.hk](http://www.paediatrician.org.hk). The College, Paediatric and Subspecialty Societies will organise refresher courses, up-dates on special topics and clinical meetings for the benefit of Fellows and Members.

The Committees under the Council of the College for the purpose of education, training, examination and accreditation are :

The Education Committee  
The Accreditation Committee  
The Examination Committee  
The Review Committee

Louis C K Low  
Chairman  
Education Committee (2004-2006)

## **II. GENERAL EDUCATIONAL OBJECTIVES**

The paediatric trainees are expected to learn and master the scientific and fundamental aspects of paediatric knowledge, clinical and technical skills and possess the appropriate attitudes needed for the practice of paediatrics. They should be able to apply these basic knowledge to formulate and solve various clinical problems. They should be aware of the child's other special needs, whether social, emotional or educational. They should also be sensitive to the parental or environmental problems influencing the child's condition. The trained paediatrician is deemed appropriately prepared to deliver child health care at primary and secondary levels and some at tertiary level also. They are committed to act as advocates for children and adolescents. Paediatricians must also be committed to life-long learning and to providing the highest standards of evidence based care to their patients.

Primary care is the first contact interaction between the doctor and the child. This includes supervision of general health issues such as (1) promotion of normal growth and development, (2) immunization, (3) nutrition, (4) advice and guidance, (5) co-ordination of social, political and economic influences to improve the child's health and (6) management of minor ailments and clinical problems. It is the view of the College that paediatricians are the best doctors to look after children and adolescents in the community.

Secondary care may be interpreted as "general paediatric consultation". Screening may or may not have already been performed by the primary care doctor. The paediatrician is expected to provide a more sophisticated level of care and be more competent and experienced in formulating the diagnosis and solving problems. When acting as a consultant, he should provide a supportive, advisory and often reinforcement role to the primary care doctor.

Tertiary care is provided in centres with special facilities and involves paediatricians with subspecialty skills and experience. The paediatricians are expected to possess in-depth knowledge to assess and solve complex problems related to their subspecialties. Neonatal intensive care is a well-known example. Provision of such a service does not require only paediatricians with special training in neonatology but also highly trained nurses and other supporting facilities such as high quality micro-laboratory service, sophisticated monitoring devices and ventilating equipments.

The proposed educational programme is expected to vary from one centre to another, and even among trainees in the same centre. This variation is inevitable for reasons such as the differences in clinical problems encountered, particular areas of emphasis of the centre, individual teacher's subspecialty interest and the responsibilities assumed.

### **III. REQUIREMENTS FOR ADMISSION INTO THE TRAINING PROGRAMME**

To qualify for admission into a training programme, the applicant has to be a fully registered medical practitioner in Hong Kong. He has to be a paid-up Associate of the Hong Kong College of Paediatricians for the basic training and a Member of the College for the higher training.



## **IV. THE TRAINING PROGRAMME**

### ***A. The Basic Training***

The minimum duration of basic training is 3 years, of which 2 years will be spent in general paediatrics and neonatology, 6 months in a “flexible” programme in any paediatric or child health related specialty and a 6-month compulsory module in accredited Maternal and Child Health / Child Assessment Centres. There should be at least 6 months but not more than 12 months of neonatology. The training period should be continuous unless approved by the Accreditation Committee (Refer to Accreditation Guidelines for details).

Training must be undertaken in accredited paediatric units under the supervision of training supervisors. In each unit a Fellow will be appointed by the College to act as supervisor to oversee the training in that unit.

When a candidate is accepted for training by a paediatric unit, the supervisor will submit to the College for approval a programme of training in detail for the entire 3 years (Appendix B). If the unit is not accredited for 3 years of training, arrangement will have to be made with another unit to take on part of the training.

The trainee will thereafter be rotated to work under different trainers according to the approved programme. During this period, apart from gaining in-service training and experience, the trainee will also attend the various structured teaching programmes organised by the College, take part in case presentation and discussions both in the ward and in seminars, join journal club meetings etc. to attain the objectives set in Section VI, “Objectives of the Basic Training Programme”. In the meantime, the experience and exposure will be recorded in the official log book and certified by the trainers and endorsed by the training supervisor of the unit.

### ***B. Intermediate Examination***

The trainee will also study and prepare to sit for the intermediate examination which should normally be taken at the end of the 3 years of training but may be attempted after two years or more of training to allow for the timing of the examination which may not take place at the end of the training period (Appendix C).

### ***C. Admission to Membership***

When the trainee has passed the intermediate examination and completed the 3 years of supervised training to the satisfaction of the College Council, he will be admitted to the Membership of the College. Attendance and satisfactory completion of the Paediatric Advanced Life Support Course or its equivalent is a prerequisite for application for Membership of the College.

### ***D. The Higher Training***

A Member of the College may apply for admission to higher training in General Paediatrics.

In each institution a Fellow will be appointed by the College to act as the supervisor who will submit the full 3-year training programme to the College for approval (Appendix B). For higher training, at least 6 months have to be spent in another unit either locally or abroad in order to broaden the trainee's exposure, experience and outlook. The training period should be continuous unless approved by the Accreditation Committee.

### ***E. Assessment of Higher Training***

Continuous assessment will be done by the trainers involved. Experience and exposure will be recorded by the trainee in a log book and certified by the trainers. Assessment forms will be completed by the trainers at regular intervals and by the supervisor at completion of training.

At completion of training, the trainee is required to submit his log book together with the stipulated number of dissertations to the College Council for final assessment. The Exit Assessment will be conducted by a Board of examiners appointed by the College and will include an interview (Appendix D).

### ***F. Elevation to Fellowship***

When the Council is satisfied that the trainee has completed the course of training in the manner as prescribed in the approved programme, he will be elevated to the Fellowship of the College and will become eligible for recommendation to the Hong Kong Academy of Medicine to be a Fellow of the Academy.

### ***G. Mechanism for Appeal***

Any dispute arising from the examination or the assessment of the training may be referred to the Chairperson of the Review Committee. The Chairperson of the Review Committee, together with a committee appointed for the purpose by the Council, shall review the situation and make a fair and impartial recommendation to the College Council. The ruling of the College Council shall be final unless it is overturned by a general meeting of the Fellows of the College.

## **V. RECOGNITION OF TRAINING OUTSIDE HONG KONG**

There are instances where a candidate might have obtained part or all of his training outside Hong Kong. He may apply to the Council for recognition of his training. The onus rests with the candidate to provide documented evidence that the training is equivalent to that required by the College. The Council reserves the right to recognise or refute the training and experience so submitted. A fee will be charged for the accreditation of overseas training.

A programme supervisor may incorporate an overseas training period as part of the training programme but this requires submission of details of the centre and the actual training programme for prospective approval by the Accreditation Committee.

## **VI. OBJECTIVES OF THE BASIC TRAINING PROGRAMME**

### ***A. Acquisition of Knowledge***

The trainee is expected to understand the basic concept of the following:

1. Normal body function, growth and development of the child.
2. Abnormalities in growth and development.
3. Knowledge of aetiology and pathophysiology of common and serious childhood diseases.
4. Disease states and deviation from norm: The trainee is expected to be

able to recognise, diagnose and manage problems and deviations from normality in an evidence based fashion.

5. Restoration of body function: The trainee is expected to acquire adequate knowledge to implement plans to restore body function by correcting underlying cause of disease or modifying the course of disorder.
6. Use of technical procedures: The trainee is expected to attain the knowledge and skills needed for safe and efficient use of technical procedures described in the appropriate sections below.
7. Clinical pharmacology: The trainee is expected to possess knowledge on the clinical pharmacology of common drugs, particularly their functions in relation to the children's age and maturity.
8. Understand the psychosocial impact of acute and chronic illness on the mental health and education of the child and the rest of the family. Trainees should be conversant with the Children's Charter.
9. Provision of child health care: The trainee is expected to demonstrate knowledge on various health care provisions including:
  - a) Cost / benefit of various forms of health care facilities
  - b) Choice of hospital, ambulatory or home care for any particular health problem
  - c) Preventive versus therapeutic health care
  - d) Promotion of health
  - e) Knowledge of governmental and non-governmental agencies that provide support to children and their families in coping with their health problems.
10. Epidemiology and prevention of disease.
11. Knowledge of the principles of the Convention on the Rights of the Child and its application to child health.

## ***B. Skills***

The trainee is expected to demonstrate the skill outlined below:

## 1. Clinical skills (Appendix A)

### 1.1 Interviewing

To establish a professional relationship with the patient (infant, child or adolescent) and parent or guardian. The trainee must develop effective communication skills and use a language understood by parent/guardian and/or patient. During the interview and in on-going contacts, the trainee will convey interest, empathy and support appropriate to the clinical situation.

### 1.2 History taking

To elicit and record information for a complete history, including the following:

- a) chief complaint
- b) details of present illness
- c) functional inquiry of systems
- d) past history, family history, social history and history of birth development, diet, immunization and allergies.

### 1.3 Physical examination

To perform a careful and orderly physical examination with sensitivity, modified according to the patient's age and problem, and to record this information systematically:

- a) recognise a seriously ill child and to institute appropriate immediate action
- b) assess the development of infants and children
- c) assess the mental state of children and young people
- d) elicit physical signs accurately.

### 1.4 Record keeping

To record patient's proper identity, e.g. name, date of birth, sex and condition clearly, concisely and accurately, to maintain an up-to-date progress note and to file the essential documents in the patient's record for immediate and future reference.

### 1.5 Communication

To be able to communicate and discuss the patient's problems with:

- a) peers and allied health professionals
- b) patients and parents or guardians.

### 1.6 Presentation

To be able to present the patient's problems clearly, concisely, and correctly in the following ways:

- a) written medical record
- b) verbal presentation at the bedside, in a seminar or classroom
- c) preparation and presentation of a scientific paper or case report to a medical audience, and in so doing also to monitor and upgrade patient care.

### 1.7 Problem solving

- a) To demonstrate the ability to correlate information acquired by interview, history taking, physical examination and laboratory tests for the recognition and definition of problems, thereby indicating the reasoning for considering various diagnostic possibilities
- b) To be able to initiate appropriate investigations
- c) To demonstrate the ability to manage problems by:
  - i) formulation of a plan of management, based on needs and priorities, including diagnostic and therapeutic measures
  - ii) ability to use clinical guidelines appropriately
  - iii) utilization of appropriate resources
  - iv) establishment of the patient care objectives
  - v) explanation of the management plan in order to solicit cooperation from:
    - patient and parents
    - personnel of resource services

- vi) evaluation of effectiveness of management plans through proper recording and periodic assessment of the patient's progress
- vii) recognition of one's own limitations, by requesting consultation through appropriate action
- viii) practice of evidence based management of problems through knowledge derived from critical appraisal of the literature.
- ix) avoidance of unnecessary investigation and/or hospitalisation
- x) communication with patients, parents, peers and public, directly, by telephone or by written message
- xi) ability to interpret common laboratory results
- xii) ability to prescribe safely
- xiii) demonstration of effective time management skills.

## 2. Technical skills

To master the following technical skills safely and efficiently:

- 2.1 Common laboratory procedures and diagnostic techniques as delineated in the Syllabus (Appendix A)
- 2.2 Various methods of vascular access (venous and arterial, peripheral and central)
- 2.3 Different methods of injections (intradermal, subcutaneous, intramuscular and intravenous)
- 2.4 While attending to technical skills, the trainee should know how to minimise pain and discomfort for the child during the procedure.
- 2.5 Collection of specimens (blood, urine, stool and other body fluids)
- 2.6 Cardiopulmonary resuscitation and successful completion of the Paediatric Advanced Life Support course or its equivalent
- 2.7 Methods of monitoring acutely ill patients.

### *C. Attitudes*

1. Attitude towards children
  - a) An interest in children, a capacity to establish and maintain a responsible relationship with the young patient and his family
  - b) Honesty and compassion towards children, in dealing with all paediatric problems including the problems of the dying child and/ or deformed child
  - c) An awareness of psychosocial as well as biological factors in the assessment of any child
  - d) An appreciation that the health care needs of children are distinct from those of adults because of physiological differences in response to disease processes, family inter-relationships, growth and development, disease entities encountered, pharmacology, the patient's perception of disease and the family's perception of disease.
  
2. Inter-personal attitudes
  - a) A non-judgmental attitude particularly when dealing with parents from different backgrounds (ethnic, social, religious) than one's own and adolescents with different value judgments than one's own
  - b) The capacity to establish and maintain co-operative interpersonal relationships with colleagues, nurses and other health care, and community resources personnel
  - c) An appreciation that a parent's concern for a child's health may be out of proportion to one's assessment of the severity of the condition
  - d) Promotion of active family involvement in the continuing management of the hospitalised child and empowerment of the family to care for the child at home.



### 3. Personal attitudes

- a) Commitment to a policy of advocacy for a healthy lifestyle in children and adolescents and for the protection of their rights
- b) Ability to work with different health care professionals in a multi-disciplinary team to ensure continuity and holistic seamless approach to the care of children and adolescents
- c) Flexibility and willingness to adjust appropriately to changing circumstances
- d) Application of scientific principles to the critical evaluation of medical publication
- e) Habit of self-education in order to update continuously knowledge and skills; acceptance of the major critical role in one's own training programme; a life-long commitment to continuing education; recognition of limitations in one's own skills and knowledge which can be corrected by study and training; use of peer review and teacher assessment as an effective way of improving clinical performance
- f) Appreciation of, as well as the ability to use, the reference library, textbooks, journals, tapes and other resources dealing with clinical paediatrics and related fields
- g) Appreciation of one's own limitation in training and experience.

### 4. Social attitudes

- a) Appreciation of the social, societal and governmental aspects of health care provision as applied to the paediatric age group
- b) Appreciation of cost and cost effectiveness of various forms of paediatric care
- c) Appreciation of the moral and ethical implications of various forms of patient care.

5. Appreciation of special problems
  - a) Child with multiple handicaps
  - b) Chronic illness
  - c) Dying child/death
  - d) Medical Ethics
  - e) WHO's Ten Steps to Successful Breastfeeding and the International Code of Marketing of Breastmilk Substitutes
  - f) Child trafficking.

## **VII. OBJECTIVES OF THE HIGHER TRAINING PROGRAMME**

- A. To reaffirm the general objectives of the basic training programme.
- B. To provide an in-depth experience in the appraisal, diagnostic work-up and management of diseases and health problems in children based on current evidence and practice guidelines.
- C. To develop decision-making skills especially in emergency situations.
- D. To identify problems in outpatient referrals from outside doctors and in inpatient consultations and show regular use of analytic clinical reasoning and skills.
- E. To identify situations where collaboration with other units or other disciplines may be necessary, or where special skills are required but not available on site, when referral to a tertiary centre should be made.
- F. To ensure adequate follow-up of patients to observe the evolution of disease processes.
- G. To reinforce self-learning and the search of literature for specific topics.

- H. To foster interest in clinical or basic research.
- I. To encourage participation in clinical discussions, seminars or scientific meetings, with critical appraisal of current literature.
- J. To learn and critically assess new methods of investigation and treatment for incorporating into the routine operation of the unit.
- K. To cultivate rapport and effective communication skills with other health care professionals, children, young people and their families.
- L. To involve the trainee in the routine management of a paediatric unit and the organisational skill required in the running of a quality paediatric service.
- M. To assist in the supervision of junior trainees in their acquisition of knowledge, clinical and technical skills.
- N. In the case of general paediatrics, some subspecialty experience is to be encouraged. However, the time spent in any one subspecialty should not exceed 12 months during the 3-year Higher Training Programme.

## **VIII. APPLICATION FOR RECOGNITION OF A NEW SUBSPECIALTY**

At present, some paediatric subspecialties are well-established in Hong Kong and can engage full-time doctors working as subspecialists. Other subspecialties are taken up by general paediatricians with special interest in a particular field. It is envisaged that as the number of trained paediatricians increases, more will take up subspecialisation either on a part-time or on a full-time basis depending on the demand, opportunity and resources available. At the time of writing, there is no accredited training programme in any paediatric subspecialty in Hong Kong. The “Guideline on the Accreditation of Training in a Paediatric Subspecialty” can be viewed in Appendix B (Section 13)

Short of establishing subspecialty units de novo and importing all the trainers from overseas, recognition has to be given to Fellows in Paediatrics who have adequate experience and have taken up work in a subspecialty. They will, of course, be required to produce evidence that they have undergone adequate training or exposure in that subspecialty in an established centre and that they have a good track record of clinical work and preferably some publications in the subspecialty field as well. These “First

Fellows” in a paediatric subspecialty must fulfil the requirements laid down in the “Guidelines on the Admission as First Fellows in a Subspecialty” of the Hong Kong Academy of Medicine.

The College would encourage Fellows who have developed and practised a new subspecialty to apply for recognition when they feel they have acquired the standard needed to satisfy the Accreditation Committee.

## **SYLLABUS FOR TRAINING IN PAEDIATRICS AND ITS RELATED DISCIPLINES**

	<b>Pages</b>
General Paediatrics	22
Paediatric Subspecialties	
1. Adolescent Medicine	29
2. Cardiology	35
3. Clinical Genetics	41
4. Endocrinology and Metabolism	45
5. Gastroenterology and Hepatology	49
6. Haematology and Oncology	53
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12. Neurology and Developmental Paediatrics	83
13. Respiratory Medicine	89
Other Related Disciplines	
14. Clinical Pharmacology	93
15. Dermatology	94
16. Ophthalmology	95
17. Otorhinolaryngology	96

# GENERAL PAEDIATRICS

## I. INTRODUCTION

The purpose of the training programme in general paediatrics is to ensure that the trainees would have attained the necessary standard of paediatric knowledge, skill and attitude after their six years of training, to allow them to practise as multi-task primary care paediatricians in the community or as a specialist in the hospital service. It is envisaged that most trainees would opt for training in general paediatrics. As the trained paediatrician is deemed appropriately trained to deliver care to children at the primary, secondary and occasionally at the tertiary level, a broad and in-depth experience in the diagnosis, investigation and treatment of paediatric diseases is necessary.

## II. BASIC TRAINING

### A. *Knowledge*

1. Refer to section VI. A. of the Objectives of the Basic Training Programme.
2. The scientific basis including the aetiology, pathophysiology, clinical manifestations, investigations and management of common paediatric disorders. The knowledge required is delineated in the syllabus of basic training suggested in the various paediatric subspecialties and related disciplines (see subsequent sections in Appendix A).
3. The psychosocial aspect of childhood diseases.
4. Care of the well child from birth to adolescence including guidance on all aspects of parenting and child-care, health education for older children and adolescents, immunization; health and developmental surveillance and screening, and health promotion.
5. Interpretation of results of investigations and special diagnostic procedures.
6. Behavioural Paediatrics

- a) Normal child development (motor, cognitive, language and speech, emotional and social)
- b) Various risk and protective factors in the biogenetic, psychological (cognitive and emotional) and social (family, school and community) domains that may affect the behaviour of a child
- c) Impact of acute and chronic illnesses (including developmental difficulties) on child behaviour and family functioning; methods of prevention and management of behavioural problems that develop during or immediately after an illness
- d) Approaches to the assessment of behaviour problems, through history taking and observation
- e) Approaches and strategies of engaging and supporting parents of children with emotional or behavioural difficulties
- f) Effective parenting practices to prevent or manage common childhood behaviour problems
- g) Effective services available in the community which address childhood emotional and behavioural problems and the way to access these services
- h) Multidisciplinary nature of the child and adolescent psychiatric services
  - i) symptomatology and basic principles of management of common behavioural conditions (including the whole spectrum of mild problem to conduct disorder)
  - ii) neurodevelopmental conditions: e.g. ADHD/ADD, autistic spectrum disorders
  - iii) externalising conditions: e.g. crying; temper tantrum, oppositional behaviour, conduct disorders
  - iv) internalising conditions: e.g. anxiety, mood disorders
  - v) conditions affecting sleep, feeding, eating and elimination
  - vi) somatic conditions with psychological basis
  - vii) self injury behaviour, substance abuse
  - viii) psychosis

## 7. Social Paediatrics

- a) Social and environmental factors affecting health including poverty, single parent family, children in care, poor housing and environment, education and recreational activities, influence of the mass media, health care and non-health policies
- b) Be aware of global child health issues including exploitation,

child labour, child protection, war and growing up in low income countries

- c) Be aware of the work of the WHO and UNICEF
- d) Be aware of changes in socio-economic and demographic characteristics and trends in mortality and morbidities (including new life-style related morbidities) in the population
- e) Knowledge of the available allied health professional support and resources available from governmental and non-governmental agencies in the support of children and families with special needs.

#### 8. Child Protection

- a) Knowledge of the legal processes, legislation, the role of the court, guidelines and recommendations on child protection work
- b) Concepts and factors underpinning child protection work
- c) Local guidelines and procedures for the management of a case where abuse is suspected
- d) Be familiar with the clinical presentation, physical findings and different categories of abuse, e.g. emotional, physical, sexual, neglect.

#### 9. Child Public Health

- a) Key determinants of child health and well-being (including indices of social deprivation)
- b) Approaches to health needs assessment
- c) Principles and strategies of health promotion (Ottawa Charter, 1986; Bangkok Charter, 2005) and current health promotion / education activities in the community (e.g. healthy eating, fitness, home-safety, sex-education, parenting, oral health)
- d) Levels of disease prevention (primordial; primary; secondary – screening and surveillance; tertiary)
- e) Service quality improvement methods
  - i) dimensions/parameters of service quality
  - ii) evaluation methodologies
  - iii) formative, process and outcome evaluation
  - iv) quantitative and qualitative methods
  - v) clinical audit (a spiral of standard setting, data collection, evaluation, implementation of improvement measures)
- f) Causes of outbreak of infection, investigation and control



- g) The structure and functions of the health (e.g. Hospital Authority, Department of Health including the Centre for Health Protection), social (the Social Welfare Department and non-governmental organisations) and education (the Education and Manpower Bureau) sectors relevant to children & families
  - h) Current government policies related to children and families.
10. Palliative Care
- a) Familiar with local and international guidelines and ethical issues on withdrawing and withholding treatment
  - b) Awareness of local facilities for respite and hospice care
  - c) Knowledge of the diagnosis of brain-stem death.

## ***B. Skills***

1. Refer to Section IV. B. and specific requirements in the Basic Training Syllabus of different subspecialties.
2. Recognise and outline the management of children in need.
3. Recognise features in the presentation when child protection may be an issue.
4. Recognise families in distress and in need of help to prevent child abuse.
5. Keep accurate records of all communication with the child, family members and other professionals and results of all physical findings using body charts.
6. Recognise abnormal demeanor and interaction of child with parents or child carer.
7. Know how to access the Child Protection Register.
8. Able to contribute to written reports on child protection cases for the police or social services.

### ***C. Attitudes***

1. Refer to Section IV. C. and specific requirements in the Basic Training Syllabus of different subspecialties.
2. Understand the ways in which their own beliefs, experience and attitudes might influence professional involvement in child protection work and counselling.
3. Understand the need to initiate a safe response where child abuse is suspected while treating the family with respect and courtesy.
4. Be sensitive to the emotional impact of child abuse on the child, family and on professionals.
5. Understand the need for respect of the wishes of the child and adolescent when planning for their management.
6. Be aware of local bereavement support services.
7. Recognise loss and grief and their effects on the health and well-being of children, families and professional staff.

## **III. HIGHER TRAINING**

### ***A. Knowledge***

1. In-depth and updated knowledge of the various disciplines of general paediatrics delineated in the Basic Training Programme.
2. Advances in different paediatric subspecialties and updated knowledge in the diagnosis and treatment of diseases of different subspecialties. Refer to syllabus of higher training in different subspecialties.
3. Concepts of management of a paediatric unit within a general hospital:
  - a) Quality assurance programme
  - b) Resource allocation and budgeting

- c) Medical audit
  - d) Personnel management.
4. Critical appraisal of published work and clinical research on disease and outcome of different treatment modalities.

***B. Skills***

1. Competence in the diagnosis and management of all common paediatric emergencies.
2. Diagnosis and management of complex paediatric problems and patients with multiple diseases.
3. Selection of patients for referral to tertiary or subspecialty care.
4. Decision-making skills in emergency situations as well as in-patient and out-patient management.
5. Technical competence in investigation and therapeutic procedures.
6. Exposure and the use of highly technical equipment used in the monitoring of acutely ill patients.
7. Teaching and supervision of junior trainees in their acquisition of knowledge, clinical and technical skills.
8. Leadership skills and the promotion of a harmonious working atmosphere for different health care workers.

***C. Attitudes***

1. Enhance and reinforce the attitudes established during the Basic Training Programme.
2. Greater awareness of the psychosocial aspect of paediatric diseases.
3. Willingness to refer patients to other subspecialties appropriately.

4. Commitment to continuing self learning, medical education and professional development.
5. Maintain a cooperative interpersonal relationship with health care professionals in the hospital and in the community.
6. Refer to general attitude and those suggested by different subspecialties higher.

# ADOLESCENT MEDICINE

## I. BASIC TRAINING

### A. *Introduction*

Adolescence is a period of intense physical and psychological changes usually beginning and ending in the second decade of life. The events and problems that arise during this period are often perplexing to parents, healthcare professionals, and adolescents themselves. A paediatrician in training is required to have basic understanding of adolescent growth, physical and psychosocial development, with awareness and skills to identify and manage the special needs and common health problems of the adolescent.

### B. *Knowledge*

1. Definition of adolescence.
2. Statistics and epidemiology of adolescent health.
3. Biopsychosocial development of adolescence and the importance of physical, emotional, intellectual and social influences.
4. Growth and pubertal problems.
5. Nutritional requirements.
6. Knowledge of issues around the transition from paediatric to adult care in adolescents with chronic and disabling medical conditions, e.g. epilepsy, diabetes mellitus, thalassaemia major.
7. Factors related to drug compliance in the chronically ill.
8. Gynaecological problems-menstrual disorders, sexually transmitted diseases, especially AIDS.
9. Understanding adolescent sexuality, contraception and sex education.
10. Other medical problems including dermatological (especially acne) and orthopaedic conditions; physical and intellectual handicaps.
11. Causes and prevention of risk-taking behaviour, e.g. drug and alcohol abuse, teenage pregnancy, runaway.
12. Psychiatric and emotional problems, including depression, anxiety, psychosis, suicide.
13. Manifestation and clinical presentation of eating disorders.
14. Parenting styles, communication issues.
15. Adolescent violence and violence and abuse to adolescents.
16. Educational and vocational needs : learning disabilities.

### ***C. Skills***

1. Clinical skills
  - a) General clinical skills
  - b) Development-appropriate skills to establish effective communication and rapport, identify problems, evaluate verbal and non-verbal behaviour, and reach a therapeutic agreement with adolescents.
  
2. Technical skills
  - a) Use and interpretation of physical growth charts
  - b) Use and interpretation of Sexual Maturity Ratings (Tanner's Staging System)
  - c) Competence in obtaining a comprehensive history sensitively concerning adolescent health in the context of home environment, education, emotional well-being, activity, abuse of drugs, sexuality and suicidal ideation.

### ***D. Attitudes***

1. See general attitudes.
  
2. Appreciation of the importance of adolescents in community, in terms of education investment, commercial exploitation, and social implications.
  
3. Appreciation that specific and changing health care needs of adolescents are distinct from those of children as well as adults.
  
4. Be sensitive, responsive and yet have a non-judgmental attitude towards the health and emotional needs of the adolescent.
  
5. Understand and follow the principles and legal aspects of consent and confidentiality.

## **II. HIGHER TRAINING**

### ***A. Introduction***

This training aims to secure understanding and skills in identifying and managing the common problems of adolescents; familiarity with physical and emotional development of the adolescent as well as the more specific problems associated with chronic illness and disability; knowledge of available resources and services within the community. The curriculum will enhance skills in adolescent health care, leadership roles, and research and teaching proficiencies. The curriculum for training in Adolescent Medicine is comprehensive and it is envisaged that only part of the curriculum can be covered in the 12 months of adolescent medicine training in the Higher Training Programme.

### ***B. Knowledge***

#### **1. Basic adolescent principles**

The training should enhance the knowledge acquired in the basic training in both depth and width.

#### **2. Care of adolescents with chronic illness**

- a) Understanding of the biologic, behavioural and social manifestations of the disease process, and of the impact on the adolescent, his family and society
- b) Effective management of treatment compliance issues and the involvement of the adolescent in the treatment process
- c) Planning of transition care to adult service of a variety of chronic medical conditions.

#### **3. Knowledge on physical conditions primarily affecting or more common in adolescents**

- a) Growth and maturational disturbance
- b) Nutritional disturbances
- c) Dermatological conditions, e.g. acne
- d) Musculoskeletal conditions, e.g. scoliosis
- e) Disorders of eyes, ears, nose and throat
- f) Conditions of the reproductive tract, e.g. menstrual disorders

- g) Oral hygiene and dental conditions
  - h) Sports medicine.
4. Psychological/psychiatric conditions affecting or aggravated by adolescence (Knowledge and clinical communication skills can only be acquired under a qualified trainer in child psychiatry)
- a) Depression
  - b) Mood disorders and anxiety
  - c) Suicide and suicidal behaviour
  - d) School anxiety and related disorders
  - e) Psychosomatic disorders
  - f) Conduct disorders
  - g) Risk-taking behaviours
  - h) Conversion disorders
  - i) Personality disorders
  - j) Schizophrenia
  - k) Family related problems including parenting issues
  - l) Relationship problems
  - m) Impact of chronic illness, disability, death and dying.
5. At-risk behaviours and health consequences
- a) STD: AIDS, genital herpes, gonorrhoea, syphilis, chlamydia, genital warts
  - b) Sexual behaviours: teenage pregnancy, sexual abuse or assault, abnormal adolescent sexual behaviour, contraception
  - c) Alcohol, tobacco and substance abuse
  - d) Runaway and homelessness
  - e) Intentional and unintentional injury: violence, homicide, suicide
  - f) Eating disorders: anorexia nervosa, bulimia nervosa, obesity.
6. Development of adolescent health promotion programmes: policies for reduction of teenage pregnancy, drug and alcohol abuse and have the knowledge on the organisation and management of a patient-centred adolescent health care service.

### ***C. Skills***

1. Effective interviewing skills in being able to establish rapport, identify



problems and reach a therapeutic agreement with the adolescent; and be able to evaluate verbal and non-verbal behaviours.

2. Be able to take a thorough and efficient growth and development history, to assess patient's stage of gonadal or breast development, pubic hair growth, simple office gynaecological examination and skills (Pap smear and swabs), and to interpret bone age radiographs.
3. Be able, through interview, to differentiate normal from abnormal psychosocial and interpersonal development.
4. Be able to discuss sexuality issues and the impact of sexuality on the growing and developing adolescent with patients, parents and colleagues.
5. Be able to give counselling on contraceptive methods, teenage pregnancy and teenage parenting skills.
6. To have appropriate skills in managing common medical problems, and seek expert opinion on less common medical problems, but maintain continuity of care.
7. Skills in managing the emotional impact of chronic illness on the adolescent.
8. Skills in managing adolescents with behavioural disorders, especially psychosomatic disorders, substance abuse, depression and suicide.
9. Skills to develop health promotion programmes with a view to decrease preventable health problems.
10. Fundamental research skills, teaching skills, and skills to critically evaluate medical literature.
11. Be able to effectively teach adolescent medicine to health professionals, adolescents, parents and lay groups.
12. Management skills in delivering adolescent health care service and collaborating in a multidisciplinary team.

#### ***D. Attitudes***

1. Attitudes as mentioned in the Basic Training Programme.
2. To develop a sensitive, responsive and yet non-judgmental attitude towards the health and emotional needs of the adolescent.
3. To act as advocate for the holistic well-being of young people in society.

# CARDIOLOGY

## I. INTRODUCTION

Major advances in the diagnosis and management of paediatric cardiology in the past decade have necessitated changes in the training of paediatricians. Most congenital heart diseases can now be diagnosed early in life. Timely transfer to a tertiary centre and interventions using pharmacological or catheter techniques have greatly improved the prognosis of severe congenital heart diseases. All paediatricians are therefore expected to be familiar with the diagnostic modalities and know when to refer a patient for assessment by specialists.

The training programme for paediatric cardiology in the Higher Training Programme should cover a minimum core curriculum during the 12-month training period.

## II. BASIC TRAINING

### A. *Knowledge*

1. The normal anatomy and haemodynamics of the heart.
2. Abnormal anatomy and haemodynamics associated with common cyanotic and acyanotic congenital heart defects and the haemodynamic reasons for murmurs.
3. The foetal circulation and the postnatal circulatory changes.
4. Genetic and environmental aetiology of congenital heart diseases, their incidence inheritance and knowledge on parental counselling.
5. Common congenital heart disease: natural history and indications and ideal age for surgical repair of defects such as ventricular and atrial, septal defects, patent arterial duct, pulmonary stenosis, tetralogy of Fallot, transposition of the great arteries, coarctation of the aorta and aortic stenosis.
6. Arrhythmia: causes, diagnosis and management of paroxysmal

supraventricular tachycardia, ventricular premature contractions, atrial premature contractions, normal heart rate and variability.

7. Cardiomegaly: causes and investigations of cardiomegaly.
8. Congestive heart failure and cardiogenic shock: causes, diagnosis and management of congestive heart failure and shock.
9. Rheumatic fever, with or without carditis: diagnosis, management and prevention of recurrence.
10. Nutritional problems in the patient with severe heart disease.
11. High blood pressure: normal range of blood pressure in children and the management of hypertension in children.
12. Carditis and cardiomyopathy: causes and management of carditis and cardiomyopathy.
13. Systemic diseases with cardiac involvement: Kawasaki disease, systemic lupus erythematosus, neuromuscular diseases,  $\beta$ -thalassaemia major.
14. Causes of endocarditis: occurrence of infective endocarditis and brain abscess as complications of congenital heart disease and indications for antibiotic prophylaxis for infective endocarditis.
15. Indications, interpretation of data derived, costs, limitations, benefits and hazards of various types of cardiac investigations, including plain chest radiograph, echocardiography, cardiac catheterisation, angiocardiology, electrocardiogram, exercise ECG, Holter monitor and radioisotope studies.
16. Exercise recommendations for cardiorespiratory disorder.
17. Palpitations and syncope: causes and management.

## **B. Skills**

1. Clinical skills

- a) To be able to take relevant history and perform a complete examination and interpretation of the cardiovascular findings, formulate a list of differential diagnoses, recognise functional and organic heart murmurs, and typical auscultatory findings in common congenital heart malformations
- b) To be able to perform an accurate blood pressure by sphygmomanometer and oscilloscopic methods including measurement by Doppler method in infants, to recognise the range of normal readings at different ages and the importance of cuff size; to be aware of the difference between arm and leg blood pressure readings
- c) Differentiate between respiratory distress and cyanosis due to pulmonary and cardiac diseases in the newborn and in children
- d) To define from a postero-anterior and lateral chest X-ray abnormalities in heart size, increases and decreases in pulmonary vascularity and chamber enlargements
- e) To recognise and interpret common electrocardiographic abnormalities, such as chamber hypertrophy and disturbance in rhythm.
- f) Able to initiate emergency treatment of arrhythmia and respond appropriately to cardiac arrest.

2. Technical skills

- a) To be able to put up arterial line for monitoring purposes.
- b) To obtain 12-leads electrocardiogram.

**C. Attitudes**

See general attitudes

**III. HIGHER TRAINING**

**A. Knowledge**

- 1. The basic and fundamental disciplines of the heart and cardiovascular system such as anatomy, nomenclature physiology, biochemistry, embryology, pathology, pharmacology and genetics.

2. Knowledge on etiology, pathogenesis, risk factors, natural history, medical and surgical management, complications of various congenital and acquired diseases of the heart and great vessels.
3. Aetiology and risk factors in hypertensive and atherosclerotic heart diseases, including hyperlipidaemic states.
4. Principles, indications, interpretation, limitations, cost and complications of various cardiovascular investigations including electrocardiography, ambulatory electrocardiography, stress testing, cardiac imaging by echocardiography, radioisotopes, nuclear magnetic resonance, selective angiography and other techniques that may be involved.
5. Principles, indications, interpretations, and complications of cardiac catheterization including knowledge on radiation safety.
6. Principles, indications, efficacy and complications of various methods of interventional cardiology.
7. Principles of electrophysiology, indications for electrophysiological studies and pacemaker insertion.
8. The pre-operative and post-operative intensive care of neonates, infants and children undergoing close and open heart operations including invasive monitoring techniques and the use of vasoactive drugs.
9. Post-operative and long-term management of heart diseases in neonates, infants and children.
10. Current surgical techniques, methods of cardiopulmonary bypass and hypothermia as well as management of both immediate and delayed post-operative complications.
11. Organisation of a Paediatric cardiology service and training of Paediatric cardiologist.

## ***B. Skills***

1. Clinical skills:

- a) Clinical diagnostic skill for in-and out-patients from newborns to adolescents with conditions ranging from trivial (functional heart murmur) to the seriously ill child requiring intensive care
  - b) Interpretation of various cardiovascular investigatory results including electrocardiography, ambulatory electrocardiography, stress testing, echocardiography, radioisotope and nuclear magnetic resonance imaging, and selective angiography
  - c) Interpretation of haemodynamic data from cardiac catheterization
  - d) Effective communication with patients, parents, colleagues and other paramedical staff
  - e) Effective handling of psychological and emotional disturbances of patients and parents
  - f) Effective counselling on the diagnosis, plan of management, prognosis and exercise recommendation for common cardiac conditions.
2. Technical skills
- a) To perform echocardiography including two-dimensional, M-Mode and Doppler studies, colour flow mapping and transoesophageal echocardiography on various cardiovascular diseases, including complex congenital heart diseases under the supervision of a trainer
  - b) To perform cardiac catheterization in a safe manner with mastering of relevant electronic equipment, recording devices and angiographic equipment under supervision (optional)
  - c) To perform balloon atrial septostomy on neonates and simple balloon valvuloplasty and angioplasty under supervision (optional).

### ***C. Attitudes***

- 1. To recognise the responsibility of a paediatric cardiologist to provide continuous care for patients with heart diseases.
- 2. To recognise the importance of continuing education to keep up with advances in paediatric cardiology and the application of new techniques and management strategy in the local setting.

3. To recognise the importance of maintaining close link with other health agencies and community resources that provide services for rehabilitation and care of children with cardiac problems.
4. To recognise the cost-effectiveness, safety and outcome of different treatment modalities.
5. To put patient's welfare on first priority within the resources available.



# CLINICAL GENETICS

## I. INTRODUCTION

Genetic factors are major determinants of 5-8% of diseases in childhood and early adulthood. Recent rapid expansion in genetic science and technology has promoted tremendous growth in the understanding and management of genetic diseases. Paediatricians should be competent in the diagnosis and management of common genetic disorders.

## II. BASIC TRAINING

### A. *Knowledge*

1. Epidemiology of genetic diseases.
2. Pathogenesis, clinical features and natural history of common genetic diseases.
3. Scientific basis of chromosomal disorder.
4. Basic understanding of molecular genetics, Mendelian and non-Mendelian mode of inheritance.
5. Basic principles of genetic counselling, genetic screening, prenatal diagnosis and treatment.
6. Principles of genetic laboratory investigations.
7. Knowledge on the cultural, ethical and legal issues related to modern genetics.
8. Knowledge on the process involved in establishing and presenting the diagnosis to parents.

## ***B. Skills***

The trainee should

1. be able to recognise features suggestive of dysmorphic or genetic syndromes, and to identify associated abnormalities.
2. be able to construct a family tree and interpret common patterns of inheritance.
3. be able to initiate appropriate genetic tests and be able to interpret basic genetic reports including karyotype, biochemical test results and simple genetic analysis.
4. have experience of interviews where diagnoses of serious conditions are communicated to parents.

## ***C. Attitudes***

1. Appreciation of psychological and social ramification of genetic counselling and public health implication of community genetic programmes.
2. Appreciation of team approach in management of these patients including referral for genetic assessment and counselling.

## **III. HIGHER TRAINING**

The training is limited to a maximum period of 6 months within the 3-year Higher Paediatric Training Programme. This 6-month training in clinical genetics can be part of the 3-year Subspecialty Training Programme in Clinical Genetics in future provided prospective accreditation is obtained by application to the Accreditation Committee prior to the onset of subspecialty training. This 6-month training can include training in clinical laboratory and community genetics.

### ***A. Knowledge***

An expansion on the scope of basic training (section II. B.) and in-depth coverage of the following core subjects:

1. Formal genetics
2. Clinical genetics
3. Community genetics
4. Genetic epidemiology
5. Population genetics
6. Developmental genetics
7. Cytogenetics
8. Biochemical genetics
9. Molecular genetics
10. Information technology

***B. Skills***

1. Clinical genetic skills involve competence in conducting genetic diagnosis and counselling on all major issues of genetic disorders.
2. Laboratory genetic skills involve hands-on experience for all major disciplines of cytogenetics, biochemical genetics and molecular genetics; competence in the utilization of these technologies and interpretation of reports.
3. Community genetic skills comprise of competence in applying public health principles in genetics, including organisation and evaluation of community genetic programmes.
4. In all the above areas of practice, management skill is involved. Trainees are expected to apply management principles in these practices.
5. Ability to conduct research projects, present results in local or international conferences and prepare for publications.

6. Teaching and educational skills to disseminate genetic knowledge.

***C. Attitudes***

1. Appreciation of the difference in approaches employed in clinical genetics and community genetics.
2. Awareness of the contribution and impact of advances in science and technology on health and illness issues in genetics.
3. Ability to work in a team environment and be able to appreciate contribution from other related professionals including genetic nurses, scientists and technologists.

# ENDOCRINOLOGY AND METABOLISM

## I. INTRODUCTION

Growth and sexual development occurring in harmony are essential features of childhood. Growth in childhood and adolescence is under hormonal control and can frequently be affected by many disorders. In recent years, advances in basic science have provided new insight into the pathogenesis of endocrine and metabolic disorders, new diagnostic and treatment modalities. The trainee should have adequate exposure in this subspecialty during the basic training to ensure acquisition of appropriate knowledge and skill.

## II. BASIC TRAINING

### A. *Knowledge:*

1. The synthesis, transport, biochemical actions and the control of secretion of hormones and growth factors.
2. Metabolic Medicine
  - a) Fluid, electrolyte and acid-base disturbance
  - b) Biochemical and molecular basis and inheritance pattern of inherited metabolic diseases
  - c) Common presentations of inherited metabolic disorders like acidosis, developmental regression, encephalopathy, organomegaly, sudden infant death
  - d) Knowledge in common biochemical findings and appropriate basic investigations that should be carried out in a patient with suspected inherited metabolic diseases
  - e) Understand the principles of dietary, megavitamin and pharmacological treatment, enzyme replacement and transplantation for metabolic disorders
  - f) Be aware of the social implications and prognosis of children with metabolic disorders
  - g) Knowledge of local and international neonatal screening programmes.

3. Comprehensive knowledge of nutrition, normal and abnormal growth and pubertal development.
4. Appropriate knowledge in the clinical presentation, investigations and management of common endocrine disorders
  - a) Common growth disorders
  - b) Diabetes mellitus, diabetic ketoacidosis and hypoglycaemia
  - c) Disorders of sex development
  - d) Thyroid problems including screening for congenital hypothyroidism, neonatal thyrotoxicosis, thyrotoxicosis and goitre
  - e) Adrenal disorders
  - f) Disorder of calcium and vitamin D metabolism and metabolic bone diseases
  - g) Disorders of the ovary and female sexual maturation
  - h) Disorders of the testes and male pubertal development
  - i) Obesity
  - j) Neuroendocrine system of hypothalamus and pituitary
  - k) Endocrine manifestations of systemic disease.

***B. Skills***

1. Accurate measurement of height, weight, body proportions and head circumference.
2. Assessment of sexual development and skeletal maturation.
3. Utilization of distance and velocity growth charts and familiar with the use of local and international growth standards.
4. Competence in eliciting relevant history and clinical signs of disorders of growth, sexual development and endocrine systems.
5. Administration and interpretation of common endocrine and metabolic investigations under supervision.
6. Communication with patients/parents on diagnosis and plan of treatment.

### **III. HIGHER TRAINING**

#### ***A. Training Programme***

1. Not more than 12 months can be spent in the subspecialty during the 3-year Higher Paediatric Training Programme.
2. A period of 6 months can be spent in another recognised centre, either locally or overseas, with a comprehensive integrated training programme in clinical endocrinology and metabolism which may include some practical experience in an endocrine laboratory.
3. Experience in research relevant to endocrinology or metabolism is encouraged.
4. The one year subspecialty training could be accredited as part of the subspecialty training programme by advance application to the Accreditation Committee prior to the commencement of the Training Programme in a Paediatric Subspecialty.

#### ***B. Knowledge***

1. This should include a thorough and up-to-date knowledge of topics listed in section II. A. 4.4.
2. There should be ample opportunities for the trainees to observe, manage and assume continuing responsibility for patients with various endocrine and metabolic disorders.
3. Critical review of topics on endocrinology and metabolism should be conducted under the supervision of a trainer. Alternatively, the trainee can perform clinical review of patients or participate in research projects in endocrinology or metabolism.

#### ***C. Skills***

1. Ability to select patients for appropriate investigation and to provide effective treatment.

2. Supervision and interpretation of endocrine function tests including the combined pituitary function tests, CRF test, water deprivation test, short and long synacthen stimulation tests, dexamethasone suppression test, oral glucose tolerance test, TRH and LHRH tests and other clinical endocrine tests.
3. Interpretation of results of endocrine imaging including CT scan, MRI, ultrasonogram, radioisotopic scanning of the endocrine organs and bone densitometry.
4. Knowledge on the interpretation of results of common investigations of metabolic disorders.
5. Effectively communicate the diagnosis, treatment plan and prognosis to the patient and his/her parents.
6. Arrange appropriate transition care for patients with chronic endocrine disorders to the appropriate adult service provider.
7. Possess the experience and competence of interviews where the diagnosis of a serious inherited metabolic condition is communicated to the parents.
8. Knowledge and skill in molecular biology in endocrinology and metabolism desirable (optional).
9. Understanding the principles and practice of hormone assay methods and practical experience in an endocrine laboratory (optional).

#### ***D. Attitudes***

1. See general attitudes.
2. Should recognise the importance of multidisciplinary approach in the management of endocrine and metabolic diseases and be able to collaborate with other medical professionals in internal medicine and other specialties in providing optimal care to the patients.
3. To recognise the cost-effectiveness of various investigation and treatment modalities in the consideration of patient care.



# GASTROENTEROLOGY AND HEPATOLOGY

## I. BASIC TRAINING

All paediatric clinicians will become familiar with the management of common nutritional, gastrointestinal and liver problems. They must gain knowledge and understanding of less common disorders and know when to seek specialist assessment. The nutritional management for children is intimately associated with the practice of gastroenterology and hepatology. The clinician should develop a good understanding of these issues.

### A. *Knowledge*

1. Nutrition
  - a) Age-appropriate childhood nutritional requirements for healthy and sick children with systemic and gastrointestinal diseases
  - b) Breast feeding, formula feeding, appropriate weaning diet, enteral and parenteral nutrition
  - c) Common nutritional and feeding problems, e.g. obesity, malnutrition, failure to thrive.
  - d) Knowledge on the effects of foetal and childhood growth problems on long-term health.
2. Gastrointestinal tract
  - a) Ontogeny, structure and function of the alimentary tract
  - b) Developmental anomalies of the alimentary tract and their common long-term sequelae
  - c) Pathophysiology, diagnosis and management of gastrointestinal disorders, in particular the following:
    - i) recurrent vomiting, abdominal pain and functional bowel disorders
    - ii) gastrointestinal bleeding
    - iii) peptic ulcer disease and *Helicobacter pylori* infection
    - iv) acute and chronic diarrhoea
    - v) gastro-oesophageal reflux disease and oesophagitis
    - vi) food allergy and intolerance
    - vii) malabsorption, protein-energy malnutrition, specific

- macronutrient and micronutrient deficiencies
    - viii) necrotising enterocolitis, congenital bowel obstruction and short bowel syndrome
    - ix) dysphagia
    - x) motility disorders
    - xi) acute abdominal pain and surgical abdomen
    - xii) constipation and encopresis
    - xiii) inflammatory bowel diseases
  - d) Psychosocial aspects of chronic gastrointestinal diseases, including anorexia nervosa, non-organic failure to thrive.
- 3. Pancreas
  - a) Structure and function of the pancreas
  - b) Management of pancreatic diseases:
    - i) acute pancreatitis
    - ii) pancreatic exocrine insufficiency
- 4. Liver and biliary tree
  - a) Structure and function of the liver and biliary tree
  - b) Pathophysiology and management of common liver and biliary tract disorders, eg. jaundice, hepatitis, hepato-(spleno)-megaly, biliary atresia, genetic forms of cholestasis and gallstones
  - c) Metabolic liver diseases and chronic liver disorders
  - d) Investigation and treatment of congenital and acquired cholestatic disorders
  - e) Pathophysiology and management of liver failure and liver transplantation.

## ***B. Skills***

1. Able to describe a child's nutritional status in terms of clinical signs and body composition.
2. Clinical examination of the abdomen, liver and spleen in children including rectal examination.
3. Able to advise the mother on the benefits and practical aspects of breastfeeding and appropriate complementary feeding.

4. Understand the role of investigations in the management of gastrointestinal disorders.
5. Able to distinguish between organic and functional gastrointestinal disorder.
6. Initiate investigations to establish the diagnosis and interpret the results of gastrointestinal and liver studies.
7. Examination of stool.

### ***C. Attitudes***

The trainee must learn to seek and respect the essential contributions of the nursing staff, dietitian, speech therapist, occupational therapist and other allied health professionals together with his/her other clinical colleagues.

## **II. HIGHER TRAINING**

During the 12-month training the trainee should acquire additional knowledge, with appropriate clinical and management skills to be able to provide a quality gastroenterology and hepatology service to his/her patients. Experience in clinical and basic research is relevant to gastroenterology, hepatology or nutrition accreditation. This 12-month subspecialty training can form part of the 3-year Subspecialty Training Programme in Gastroenterology and Hepatology provided prospective application for accreditation has been submitted to the Accreditation Committee prior to the commencement of subspecialty training.

### ***A. Knowledge***

1. Thorough and current knowledge is required in the management of the disorders listed in section I. A.
2. Trainee should conduct regular reviews on current management dilemmas in gastroenterology and hepatology. This will serve to encourage literature review and stimulate critical appraisal of the work of others.

3. To gain an understanding of the principles of research and interpretation of research papers and the trainee should participate in research projects.
4. The trainee should have a good working knowledge of:
  - a) normal and abnormal histology of intestine and liver
  - b) current techniques to identify diseases of the alimentary tract.
5. The trainee must also be aware how to supervise a service and provide the investigations listed below under section II.B. In the case of Endoscopy Services, the trainee should be aware of current guidelines on care of the scope and disinfection between cases to protect patients from infectious diseases.

### ***B. Skills***

1. A trainee should be able to interpret the results and understand the indications and limitations of the common investigations, e.g., radiology (video fluoroscopy, barium or related studies, isotope scans) endoscopy, manometry, breath tests.
2. Competent in the diagnosis and management of common gastrointestinal and liver disorders.
3. Effective in communicating the diagnosis, treatment plan and prognosis to the patient and the parents.
4. Familiar with the indications of certain more sophisticated procedures and preferably be competent in performing some of these procedures under supervision (optional)
  - a) Flexible endoscopy of the upper gastrointestinal tract, including endoscopic biopsy
  - b) Insertion of Percutaneous Endoscopic Gastrostomy buttons
  - c) Percutaneous liver biopsy
  - d) Oesophageal pH monitoring and motility study.

### ***C. Attitudes***

See general attitudes.

# HAEMATOLOGY AND ONCOLOGY

## I. INTRODUCTION

Recent advances in biochemistry, molecular biology, immunology and genetics have contributed to the better understanding of various haematological and oncological problems in childhood. Development of total patient care is the common final goal for those working in this field. Following the Basic Training Programme, the trainee should have the knowledge and skills to assess a patient presenting with haematological or oncological problems in the inpatient or outpatient setting and be able to initiate investigations towards a definitive diagnosis.

## II. BASIC TRAINING

There should be sufficient exposure to common haematological and oncological problems in a haematology/oncology unit or a paediatric unit delivering expert specialised care to children with haematological and oncological diseases.

### A. *Knowledge*

1. Development, structure and function of the formed elements of the blood and blood forming organs.
2. Physiology and disorders of haemostasis, platelet and coagulation disorders and appropriate investigations and management of these conditions.
3. Mechanisms underlying abnormal increment and decrement in formed elements of the blood and knowledge of investigations and treatment of anaemia, polycythaemia, neutropenia, leukaemias.
4. Interpretation of the morphology of peripheral blood smears, routine and specialised haematology tests.
5. Principles underlying the transfusion of blood and blood products; plasmapheresis and apheresis procedures.

6. Indication and complications of bone marrow transplantation (BMT).
7. Basic knowledge of tumour biology and pathology in general.
8. Characteristics of childhood tumours including aetiology and epidemiology.
9. Knowledge of the short and long-term side effects of chemotherapy and radiotherapy.
10. Principles of cancer treatment and the roles of allied health professionals including nurse specialists, palliative care teams, psychologists.
11. Knowledge of local blood transfusion policies and procedures.
12. Social, familial and personal effects of childhood haematological and malignant diseases.

## ***B. Skills***

1. Clinical skills
  - a) Diagnosis and management of:
    - i) common anaemias including sickle cell, iron and G6PD deficiency anaemia
    - ii) immune thrombocytopenic purpura (ITP)
    - iii) haemophilias
    - iv) childhood leukaemias
  - b) Understanding of the less common haematological and oncological disorders including hereditary spherocytosis, neutropenia, aplastic anaemia, brain tumours, lymphomas, neuroblastoma and Wilms' tumour
  - c) Prompt recognition and treatment of complications resulting from transfusion of blood and blood products.
  - d) Proper and safe handling of cytotoxic drugs
  - e) Recognition of the common abnormalities in a peripheral blood smear including anaemias, leucocytosis, leucopenia, thrombocytopenia and leukaemia blasts
  - f) Counselling parents about hereditary anaemias and possibility of prenatal diagnosis and screening for thalassaemias or sickle cell trait.

- g) Be aware of local and international trials and protocols on treatment of leukaemias and solid tumours
  - h) Management of a febrile neutropenic patient.
2. Technical skills
- a) Select the appropriate haemostatic therapy and use of the correct dosages commensurate with the underlying bleeding diathesis and desired level of haemostasis
  - b) Appropriate handling of central venous catheters
  - c) Lumbar puncture and CSF microscopy
  - d) Administration of cytotoxic drugs by various routes; and disposal of cytotoxic waste.

### ***C. Attitudes***

The trainee should have the basic concept that paediatric haematology and oncology forms an integral part of training in general paediatrics.

1. The trainee should be aware of the importance of good communication with patients and parents in the management of children with cancers and develop skills in counselling and breaking bad news.
2. The trainee should appreciate the psychosocial, medico-legal and ethical issues related to the care and management of children with cancers.
3. The trainees should appreciate the multidisciplinary nature in the management of childhood cancers, involving radiotherapists, surgeons, pathologists, laboratory haematologists, radiologists, palliative care nurses, clinical psychologists and medical social workers. Good communication and coordination of services are required.

## **III. HIGHER TRAINING**

This part of the training should be conducted in a paediatric department which could provide enough clinical experience for the training in the management of in-patients, day-care patients and out-patients who have a wide variety of haematological or

oncological disorders. For the purpose of the one year higher training in paediatric haematology and oncology in the Higher Training Programme, the trainees should acquire extra knowledge and skills in the subspecialty and consolidate what has been learnt in the Basic Training Programme rotation. This one year training can form part of the 3-year subspecialty training in Paediatric Haematology and Oncology once the subspecialty training curriculum and programme have been accredited.

#### **A. Knowledge**

1. Comprehensive and in-depth knowledge listed in section II. A.
2. Interpretation of morphology of bone marrow aspiration.
3. Working knowledge and experience in bone marrow transplantation (3 months), laboratory haematology (3 months) and blood bank (1 month) are encouraged.
4. Appropriateness and interpretation of special haematology tests:
  - a) Immune causes of cytopenias - antibodies to red blood cells, white blood cells and platelet
  - b) Immunophenotyping and cytogenetics of leukaemias, lymphomas and solid tumours
  - c) HLA typing for marrow matching
  - d) Assay of coagulation factors
  - e) DNA diagnosis of inherited diseases such as thalassaemias, haemophilias and cancers.
5. Staging and classification of childhood tumours.
6. Knowledge of multimodal therapy including chemotherapy, surgery, radiotherapy and BMT.
7. Knowledge of treatment protocols of childhood malignancies, including risk-benefit and cost-effectiveness.
8. Principles of supportive treatment of cancer children:
  - a) Nutritional support
  - b) Control of emesis
  - c) Management of pain



- d) Prevention and management of infection
  - e) Blood products support
  - f) Oncological emergencies.
9. Knowledge on the diagnostic services of pathology, radiology, nuclear medicine, computerised tomography, MRI, sonography, angiography, clinical chemistry, microbiology and genetics in evaluation of children with malignancy.
10. Principles of management of blood disorders such as thalassaemias, haemophilias, ITP, aplastic anaemias, and oncologic disorders such as leukaemias, lymphomas, brain tumours, neuroblastoma, Wilms' tumour and sarcomas.
11. Ambulatory care and special outpatient follow-up of haematology and oncology patients.
12. Counselling, social and psychological support to families having children with haematological or oncological disorders.

## ***B. Skills***

1. Clinical skills
- a) To demonstrate competence in the comprehensive management of haematological disorders including thalassaemias, haemophilias, immune thrombocytopenic purpura, aplastic anaemias, and oncological disorders such as leukaemias, lymphomas, brain tumours, neuroblastoma, Wilms' tumour and sarcomas
  - b) Recognition and management of haematological and oncological emergencies
  - c) Competence in the planning and organisation of the delivery of various therapeutic modalities to cancer children
  - d) Ability to recognise and interpret abnormalities in peripheral blood smear, bone marrow aspiration and special haematology tests
  - e) Ability to provide counselling to families under stress with children suffering from cancer.
2. Technical skills
- a) Trepine biopsy

- b) Marrow harvesting and processing
- c) Handling specific problems of central venous catheters like blockade and leakage.

***C. Attitudes***

1. Commitment to provide comprehensive care to children with haematological and oncological problems.
2. Commitment to continuing medical education in haematology and oncology.
3. Awareness of the impact of a child with cancer on the family.

# IMMUNOLOGY/RHEUMATOLOGY/ALLERGY

## I. INTRODUCTION

Immunology forms the bases of understanding the pathology of a large variety of diseases, crossing boundaries of many organ-based subspecialties. Therefore a sound knowledge base in immunology is essential for many subspecialties apart from rheumatology and allergy.

The trainee is expected to be competent in the recognition and diagnosis of, as well as familiar with, the broad principle in the management of the various immunologic rheumatic and allergic diseases as listed. The trainee should also have understanding of the scientific principles of immunology and rheumatology.

## II. BASIC TRAINING

### A. *Knowledge*

1. There should be ample opportunities for the trainee to acquire knowledge on the clinical presentations and management of patients with a wide variety of acute and chronic immunologic rheumatic and allergic diseases as listed below on out-patient and in-patient basis.
  - a) Systemic lupus erythematosus and variants
  - b) Juvenile idiopathic arthritis
  - c) Juvenile dermatomyositis
  - d) Vasculitic syndromes
  - e) Scleroderma and related disorders
  - f) Arthritis related to infection
  - g) Immunodeficiencies, primary and secondary
  - h) Respiratory allergies
  - i) Atopic dermatitis
  - j) Food allergy
  - k) Chronic urticaria
  - l) Drug and vaccine related allergy syndrome
2. The trainee should also be familiar with the basic concepts in immunology, rheumatology and allergy:

- a) Aetiology and pathogenesis of rheumatic and allergic diseases
- b) Basic concepts of drug therapy in rheumatic and allergic diseases
- c) Development and function of immune system
- d) Genetic and environmental aspects of various forms of immunodeficiencies, rheumatic and allergic disorders
- e) Basic concepts of various forms of immunotherapy and haematopoietic stem cell transplantation for immunodeficiencies.

### ***B. Skills***

1. Interpretation of skeletal and soft tissue radiographs and other imaging modalities.
2. Interpretation of basic immunologic and rheumatic investigations,
3. Familiarity with various physical methods in the treatment of patients with musculoskeletal disorders.
4. Ability to interpret allergic skin tests (prick test & intradermal tests).
5. Ability to interpret serum specific IgE profile
6. Ability to order the appropriate tests for immunological and rheumatic disorders.
7. Ability to recognise and manage anaphylaxis.
8. Ability to perform and interpret spirometry results.

### ***C. Attitudes***

Emphasis on the concept of total patient care as most immunologic rheumatic and allergic diseases are chronic and have enormous impact on family dynamics.

## **III. HIGHER TRAINING**

### ***A. Knowledge***

For this one year, the trainee should have in-depth knowledge of the diseases and the basic science as listed in Basic Training Programme.

## ***B. Skills***

To develop appropriate clinical and laboratory skills in immunology rheumatology and allergy, the trainee should go through the training listed below.

1. For local training, the trainee is expected to attend regular out-patient sessions in immunology rheumatology and allergy and manage in-patients with various immunologic and rheumatic diseases. The trainee is expected to be experienced in the following management schemes:
  - a) Various drug modalities in treating rheumatic diseases including NSAID, methotrexate corticosteroid, immunosuppressive drugs, immunomodulators, intravenous immunoglobulin (IVIG) and plasmapheresis and biologics
  - b) Various management modalities in treating primary immunodeficiencies and rheumatic diseases including replacement therapy with IVIG, biological products such as granulocyte-colony stimulating factor (G-CSF) and gamma-interferon ( $\gamma$ -IFN) and anti-TNF- $\alpha$  therapy, antibiotics and haematopoietic stem cell transplantation
  - c) Management of opportunistic infections in immunodeficient patients including deep fungal infection, pneumocystis jiroveci infection, atypical and typical mycobacterial infections and various viral infections (eg. disseminated CMV and HSV infections)
  - d) Management of infections in children with secondary immunodeficiencies such as cancer patients and neonates with antibiotics, anti-fungals and biological products such as IVIG, GCSF, GM-CSF and  $\gamma$ -IFN
  - e) Management of immunologic and infectious complications in organ-transplanted children such as renal and liver transplantation
  - f) Exposure to the procedures of immunotherapy (injection or sublingual)
  - g) Exposure to drug desensitization and supervised allergen (drug or food) challenges.
  
2. The trainee could spend 6 months of active training in a recognised centre overseas. The overseas centre should have demonstrated its excellence

in terms of a full range of clinical activities and research programmes in either paediatric immunology/allergy or rheumatology.

3. The trainee could spend at most 6 months in an immunology laboratory providing a full range of immunological and rheumatological tests in order to familiarise himself/herself with the various available investigations. The trainee should understand the indication and limitation of the various tests (optional).

### ***C. Attitudes***

1. To develop quality as a team leader in mobilising input from allied medical professionals including clinical psychologist, physiotherapist, occupational therapist, nurses and social worker.
2. To interact and liaise with clinical immunologists, microbiologists, virologists and basic scientists in providing an integrated service in paediatric immunology rheumatology and allergy.
3. To cultivate the skills of and participate in formulation of clinical guidelines and protocols for immunologic rheumatic and allergic diseases.

# INFECTIOUS DISEASES

## I. INTRODUCTION

Infectious diseases are important causes of morbidity, disability and mortality in childhood. Many infectious diseases are essentially preventable, yet they are still consuming a considerable amount of health care resources and have a high public profile. Every paediatrician therefore would be expected to have sound basic knowledge and skill of prevention and management of common infectious diseases.

## II. BASIC TRAINING

### A. *Knowledge*

1. Epidemiology, pathology, clinical manifestations, natural history and management of:
  - a) Common infectious diseases in Hong Kong and around the world, including measles, rubella, scarlet fever, erythema infectiosum, roseola infantum, varicella, hand, foot and mouth disease, impetigo, mumps, pertussis, tuberculosis, influenza, infectious mononucleosis, viral hepatitis, acute gastroenteritis, food poisoning, cholera, salmonellosis, shigellosis, typhoid fever, malaria and dengue fever
  - b) Less common, but serious infectious diseases, including poliomyelitis, tetanus, diphtheria, HIV/AIDS, meningococcal infections, meningitis, encephalitis and rabies
  - c) Congenital and perinatal infections
  - d) Common parasitic infestations
  - e) Emerging and re-emerging infections, e.g. avian influenza, severe acute respiratory syndrome, enterovirus 71 infections, E. coli 0157 H7 infections, hantavirus infections and viral haemorrhagic fevers.
2. Knowledge of the classification of infectious agents.
3. Mechanisms of infection, infectious injury, host defence and vulnerability and resistance to infection.

4. Relationship between certain infectious agents (e.g. EBV, HPV, HBV, HCV etc.) and cancer or chronic illnesses.
5. Understand nosocomial infections and the basic principles of infection control.
6. Control of communicable disease, practical details of preventive programmes and be aware of policies and local and national guidelines of notifying communicable diseases.
7. Rationale for use of different antimicrobial agents.
8. Interpretation of drug susceptibility tests for antimicrobial agents.
9. Pathophysiology and management of septic and toxic shock.
10. The rationale for handling various biological specimens in specific ways to satisfy infection control and laboratory requirements.

## ***B. Skills***

1. Clinical skills
  - a) Diagnosis, recognition of complication and treatment of :
    - i) common exanthematous infectious diseases of infancy and childhood
    - ii) common respiratory infections, including influenza, upper respiratory tract infections (tonsillitis, pharyngitis, rhinitis, sinusitis, otitis media), croup syndrome, bronchitis, bronchiolitis, pneumonia and pertussis
    - iii) gastroenteritis, food poisoning, cholera, salmonellosis, shigellosis, and typhoid fever
    - iv) viral hepatitis
    - v) urinary tract infections
    - vi) meningitis and encephalitis
    - vii) infections of the skin, soft tissues, bones and joints
    - viii) infections of the eye and periorbital tissues
  - b) Diagnosis and treatment of tuberculosis: institute appropriate measures, evaluate contacts and prevent spread



- c) Understanding of less common infectious diseases, including tetanus, diphtheria, atypical mycobacterial infections, rabies and HIV/AIDS
  - d) Recognition and initial treatment of shock in infectious diseases
  - e) Diagnosis, prevention and treatment of congenital and perinatal infections
  - f) Investigation and management of fever of unknown origin or fever without localising signs, opportunistic infections and recurrent infections.
2. Technical skills
- a) Ability to obtain and handle microbiological specimens appropriately
  - b) Ability to observe and carry out infection control and proper personal protection in the management of patients with infectious conditions.

### ***C. Attitudes***

- 1. Appreciation of the scope and limitation of microbiological and virological laboratory investigations.
- 2. Appreciation of the importance of infection control in hospitals and in the community.
- 3. Appreciation of the need for cooperation with infection control personnel and public health officials in the control and prevention of community and hospital acquired infections.

## **III. HIGHER TRAINING**

### ***A. Core Disciplines***

The training programme can consist of training in both clinical work and laboratories.

- 1. For clinical training, the trainee should spend 12 months in a local

referral centre and/or overseas institution. The trainee could spend 6 months in an overseas institution after prior approval by the Accreditation Committee. A detail report should be submitted by the trainee to the College after the training.

2. For laboratory training, the trainee should spend no more than 6 months in one or more laboratories of the Department of Health or Hospital Authority hospitals or in a recognised overseas laboratory to familiarise himself with various diagnostic modalities in microbiology, virology, immunology and molecular biology under the supervision of a recognised trainer.

### ***B. Knowledge and Skills***

1. The trainee is expected to achieve an in-depth understanding of the knowledge and skills within the scope of basic training.
2. The trainee is expected to be familiar with various therapeutic regimes in the management of bacterial, viral, fungal and parasitic diseases. He should be able to interpret report of minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC), in conjunction with information on drug concentration in various body fluids and to adjust the antimicrobial treatment. He should be able to advise on the rational use of antimicrobial agents and general management of infection.
3. The trainee should fully understand and be familiar with the principle and practical procedures of infection control. These include control of nosocomial infection in the hospital as well as outbreaks in community or residential centres. He should be able to carry out contact tracing and institute appropriate prophylactic measures.
4. The trainee should have sufficient knowledge of global as well as local epidemiology of important infectious diseases and be familiar with all types of active and passive immunization.
5. The trainee is expected to be familiar with the diagnosis and management of infections in immunocompromised hosts, such as patients with

malignancy, marrow or organ transplantation, HIV infection and immunodeficiency.

6. The trainee should be encouraged to carry out research projects and to publish articles.

### ***C. Attitudes***

1. See general attitudes
2. Ability to interact and liaise with various disciplines such as microbiologists, virologists, public health doctors and infection control team in delivering an integrated infectious disease service.

# INTENSIVE CARE

## I. BASIC TRAINING

### A. *Knowledge*

1. Various supporting services in the Paediatric Intensive Care Unit (PICU) such as physiotherapy, electroencephalographic service, brainstem auditory evoked potentials service, infection control, radiology service, social worker, hospital chaplain, dietitian etc., and how these services can be recruited for the patient's benefit.
2. Psychological response of patients and their relatives towards PICU admission.
3. Basic concepts in paediatric and neonatal cardiopulmonary resuscitation.
4. Functions of monitoring equipments in intensive care unit (ICU), e.g. cardiorespiratory monitor, pulse oximeter, cerebral function monitor.
5. Clinical scoring systems in PICU.
6. Acute management of severe congenital heart disease, congestive heart failure and the use of cardiac drugs.
7. Base principle of mechanical ventilation, pressure limit and volume cycle ventilation, short and long term complications of ventilation and the appropriate use of oxygen.
8. Monitoring, interpretation and management of blood gas abnormalities.
9. Enteral and parenteral nutrition in critically ill patients.
10. Use of blood products.
11. Principles of prevention of hospital acquired infection, with strict adherence to infection control routines.

12. Use of analgesic, sedative, and neuromuscular blocking agents.
13. Post-operative care of general surgical neurosurgical, orthopaedic and cardiothoracic surgical patients.
14. Basic pharmacology, drug interaction and rational use of antibiotics.
15. Transport of PICU patients.
16. Management of patients with multiple injuries.

### ***B. Skills***

1. Clinical skill
  - a) Skill of communicating with parents and relatives of critically ill patients admitted into PICU
  - b) The skill of communicating with peers and nurses
  - c) Resuscitation of critically ill patients.
2. Technical skill
  - a) Setting up of arterial lines for monitoring
  - b) Intubation and artificial airway
  - c) Pleural tapping, drainage and biopsy
  - d) Insertion of transpyloric feeding catheters
  - e) Intra-osseous infusion
  - f) Vascular access for central venous pressure monitoring under supervision (optional).

### ***C. Attitudes***

1. Prompt response to acute problems in patients.
2. Need of an ethical and aggressive attitude in management.
3. Awareness of the need for team approach and having a cooperative and helpful attitude towards all staff in the PICU.
4. Ability to consider patient issue in appropriate medical, legal and ethical perspectives.

5. An understanding and sympathetic attitude towards parents and relatives.

## **II. HIGHER TRAINING**

### **A. Knowledge**

1. Knowledge in the organisation and operation of the PICU.
2. The use of computer data management.
3. Medical audit and quality assurance programmes.
4. Guidelines and training programme for medical and nursing staff.
5. Use of standards and protocols in PICU.
6. Contingency plans in disasters including infectious disease outbreak.
7. Knowledge to conduct research activities.
8. Routine maintenance, calibration and use of special ICU equipments.
9. Organisation of cardiopulmonary resuscitation.
10. Medical, ethical and legal issues related to withdrawal of aggressive support, organ donation and other contemporary issues.
11. Stress management in PICU.
12. Psychosocial aspect of intensive care and its impact on child, family and staff.
13. Intracranial pressure and cerebral function monitoring.
14. Advanced ventilator support including high frequency ventilation, pressure support, patient triggered ventilation and non-invasive ventilation. Strategies to decrease ventilator related injuries.

15. Physiology, pathology and management of paediatric critical illness.
16. Special needs for immuno-compromised patients e.g. Oncology receiving chemotherapy, bone marrow, liver and renal transplant cases.

### ***B. Skills***

1. Clinical skills
  - a) Selection of patient admission and discharge, according to current medical, social and ethical standards
  - b) Stabilization of sick children during interhospital transport.
2. Technical skills
  - a) Care of tracheostomy and cricothyrotomy under supervision
  - b) Short term peritoneal dialysis and haemofiltration under supervision
  - c) Post-operative management of neurosurgical patient
  - d) Pericardiocentesis under supervision
  - e) Abdominal paracentesis
  - f) Swan-Ganz catheter insertion and measurement of cardiac output (optional)
  - g) Pulmonary function tests (optional)
  - h) Haemodialysis and plasmapheresis (optional)
  - i) Pre-operative and post-operative care for cardiac patient (optional)
  - j) Participation in the pre-and post-operative care of transplant patient (optional).

### ***C. Attitudes***

1. Exhibit concern, compassion and care when dealing with critically ill children and their relatives. Understanding their emotional and religious needs.
2. Enthusiastically pursue his/her own education and contribute to the continued education of nursing, medical and allied health staff.
3. Have good interpersonal skills and be able to co-ordinate the various expert teams involved in PICU.

4. Sensitive to the psychological stress of medical and nursing staff and be able to use management skills to maintain a high standard to care in PICU.
5. Ability to design, conduct and critically assess research in PICU.



# NEONATOLOGY

## I. BASIC TRAINING

### A. *Introduction*

In the first 3 years of basic training in paediatrics, the trainee is expected to spend at least 6 months in neonatology to acquire sufficient knowledge and skills to handle common neonatal problems. He is also expected to be able to identify important neonatal conditions and to enlist help from more senior paediatricians and/or neonatologists for more sophisticated level of care.

### B. *Knowledge*

1. Foetal growth, development and physiology (including the placenta).
2. Effects of antenatal illnesses and therapy on the foetus.
3. Aspects of labour and delivery which affect the neonate.
4. Mechanisms of neonatal adaptation, especially cardiac, neurological, gastrointestinal, renal, thermal and immunological processes.
5. Demographic, medical and psycho-social factors on perinatal mortality and morbidity.
6. Special and non-specific features of neonatal illnesses.
7. Drug effects on the foetus and newborn.
8. Accommodation and care of newborn infants in hospital.
9. Principles of respiratory care, oxygen therapy, neonatal resuscitation, fluid, electrolyte and surfactant therapy
10. Common and/or important neonatal problems including prematurity and related disorders, jaundice, infection, asphyxia and the physiological effects and supportive management of hypoxic-ischaemic insult, intra-

uterine growth retardation and its complications, infants of diabetic mothers.

11. Nutrition and feeding including breastfeeding, parenteral nutrition and the importance of optimal nutritional support for sick infants.
12. Recognition of the normal, and deviation of, development of the neonate through infancy to childhood.
13. Ability to recognise, diagnose and manage problems of newborn, in particularly the following: respiratory distress in newborn including respiratory distress syndrome, transient tachypnoea of newborn, meconium aspiration syndrome, pneumonia, apnoea, cyanosis, hypotension, CNS depression, convulsions, vomiting, bleeding such as intraventricular haemorrhage, congenital anomalies, abdominal distension, common surgical emergencies, chronic respiratory disorders, bronchopulmonary dysplasia, temperature instability, heart failure, common congenital heart disease presenting in neonatal period and persistent pulmonary hypertension.
14. Knowledge of local and international newborn screening programmes for congenital hypothyroidism, metabolic disorders, G6PD deficiency and universal newborn hearing screening programme.

### ***C. Skills***

1. Clinical skills
  - a) To interpret information on maternal history, including past and present gestational events, social and environmental history and details of labour and delivery
  - b) To perform a thorough physical examination of the newborn, and identify deviations from normality of growth and development
  - c) To assess gestational age and initial status at birth and to make decision on appropriate care and monitoring measures
  - d) To recognise subtle and non-specific signs of serious illnesses, e.g. hypoglycaemia, hypocalcaemia, sepsis
  - e) To interpret important basic biochemical and blood gas data
  - f) To teach the mother on breast feeding, educate mother on the right attitude and understanding of various infant formula, common

feeding disorders, medication, bathing, pattern of sleep and wakefulness and general care

- g) To counsel parents and family members who are in distress because the neonate is critically ill or malformed, or when a newborn has a positive neonatal screening test
- h) To inform parents on the presentation and prognosis of common major and minor malformations, and syndromal disorders.

## 2. Technical skills

- a) Newborn resuscitation, initial assessment and stabilization of a sick infants
- b) Blood taking including venepuncture, heel prick
- c) Establishing venous access for intravenous fluid administration
- d) Lumbar puncture
- e) Tube feeding technique and precaution on correct placement of orogastric and nasogastric tube
- f) Exchange transfusion
- g) Application of phototherapy
- h) Transportation of the sick newborn
- i) Assisted ventilation, including application of continuous positive airway pressure (CPAP), intermittent mandatory ventilation (IMV) and intermittent positive pressure ventilation (IPPV). High frequency ventilation (HFV)
- j) Total and supplemental parenteral nutrition
- k) Umbilical catheterisation
- l) Monitoring, including cardiorespiratory monitors and various transcutaneous monitors, saturation monitor, continuous blood pressure monitor and their applications, calibrations and interpretations
- m) Chest tapping and insertion of chest drain
- n) Suprapubic bladder tap
- o) Percutaneous insertion and care of central line.

## ***D. Attitudes***

- 1. Importance of hand hygiene for prevention of infection in postnatal and special care baby nursery and neonatal intensive care units.

2. Awareness of ethical issues, social, legal and psychosocial aspects, related to the care of critically ill newborns who are malformed or extremely immature with various complications.
3. Awareness of the steps in the attachment process of mother and child, and the long term sequelae of separation of the newborn from the mother.

## **II. HIGHER TRAINING**

### **A. Introduction**

Major advances have occurred in the understanding of the basic physiology and disease states of the newborn in the last one to two decades. Sophisticated technologies have continuously been introduced in recent years. It is of utmost importance that the higher trainee must be kept up-to-date with these advances in order to cope with the rapidly changing scene of management of the neonatal patients, in particular the immature and malformed infants.

The training in clinical neonatology should be a maximum of one year during the 3-year Higher Training Programme in Paediatrics. Such training should be conducted in an accredited local or overseas institution.

### **B. Knowledge**

1. Diagnosis and management of neonatal disorders affecting the cardiorespiratory, neurological, metabolic, endocrine, renal and gastrointestinal systems.
2. Peri-operative management of neonates with surgical problems.
3. Participation in neonatal follow-up programme to develop an appropriate appreciation of the long term outcome of intensive care and the multidisciplinary approach to rehabilitative care.
4. Knowledge in medical genetics and genetic counselling.
5. Obstetric problems which may have impact on foetal and neonatal outcome.

6. The trainee should develop insight into the organisation of perinatal and neonatal services within a hospital and in the wider context of the whole territory.
7. The trainee should have opportunities to learn the administrative skills in the management of a neonatal unit, including management of physical, human and material resources: infection control and environmental safety, efficient deployment of nursing and medical manpower, evaluation and control of biomedical equipment and consumable supplies, audit and quality improvement programmes.
8. The trainee is expected to keep up-dated with the advances in this subspecialty including the technological advances even though such technology may not be available locally as yet.

### **C. Skills**

1. Clinical skills
  - a) Support of the critically ill newborn, including techniques in resuscitation, invasive monitoring, thermal control, nutritional, circulatory, ventilatory, neurological and renal support
  - b) Ability to organise and participate in the transport of the sick newborns
  - c) Teaching
    - i) the trainee should actively participate in regular learning sessions including morbidity/mortality reviews, case conferences, journal reviews and/or research meetings
    - ii) the trainee should participate in teaching of residents, nursing staff and medical students on well and sick newborns, so as to develop his or her skill as an educator
  - d) Learning research techniques and the critical appraisal of research results.
2. Technical skills
  - a) Competence in the principles and practice of the various modes of ventilatory support such as IPPV, IMV, CPAP, HFV
  - b) Use of ultrasound in the diagnosis and management of intracranial lesions and common neonatal cardiac conditions
  - c) Competence in the insertion and ascertainment of optimal placement of central lines.

#### ***D. Attitudes***

1. The trainee should develop competence in communication with and counselling to parents in acute and chronic situations.
2. The trainee should develop in-depth understanding of the psychosocial and ethical aspects of perinatal care including limit of viability, withdrawal or withholding of treatment, do not resuscitate order, and end of life care and decision.
3. The trainee should possess in-depth understanding of the developmental needs of immature and chronically ill neonates.

# NEPHROLOGY

## I. BASIC TRAINING

### A. *Knowledge*

1. Embryology of the genito-urinary tract and the recognition of disorders of embryogenesis that result in abnormalities of the genitourinary system.
2. Water and Electrolytes Balance
  - a) Control of water and electrolyte homeostasis, normal fluid and electrolyte requirements for newborn, infants and children
  - b) Understand the pathophysiology and management of water and electrolyte imbalance in infants and children.
3. Acid-Base Balance
  - a) Normal mechanism of acid-base balance, proper interpretation of blood-gas values
  - b) Understand the pathophysiology and management of acid-base disturbances in infants and children.
4. The pathophysiology, clinical manifestations and management of renal problems including:
  - a) Proteinuria
  - b) Haematuria
  - c) Nephrotic syndrome
  - d) Acute nephritic syndrome
  - e) Renal tubular disorders.
5. Renal pathophysiology, manifestations of systemic diseases and its management.
6. Acute and chronic renal failure: causes, pathophysiology and management including principles of renal replacement therapy.
7. Urinary tract infection, vesicoureteric reflux and reflux nephropathy.

8. Glomerulonephritis: clinical presentation, diagnosis and treatment..
9. Hypertension in children: definition, diagnosis, investigation and management.
10. Common urogenital abnormalities like phimosis, hypospadias, obstructive uropathy, undescended testes and antenatal hydronephrosis.
11. Voiding disorders, including neurogenic bladder, enuresis, dysuria, frequency and polyuria.
12. Hereditary renal disease like cystic kidney disease, renal tubular disorders, hereditary glomerulonephritis and other neonatal renal problems.
13. Renal calculi: causes, investigations for metabolic causes and treatment.
14. Investigations
  - a) Basic principles in evaluation of renal tubular function
  - b) Basic principles in measurement of glomerular filtration rate (GFR)
  - c) Indications and interpretation of renal biopsy
  - d) Diagnostic and interventional radiology: indications and principles of various radiological investigations including ultrasonogram, voiding cystogram, intravenous urogram, CT scan, MRI and MRU, renal arteriogram and balloon angioplasty of renal artery stenosis
  - e) Nuclear imaging for nephro-urological diseases: indications and principles of various radionuclide scans and the interpretation of each test e.g. Diethylenetriaminepenta-acetic acid (DTPA), 2,3-dimercaptosuccinic acid (DMSA) and Mercaptoacetyltriglycine (MAG3).

## ***B. Skills***

1. To recognise the presentation, assess the severity and complications, plan the initial investigations and treatment of renal diseases specified in Section I. A.



2. To communicate and give counselling on common renal problems.
3. To collect a proper urine sample for the diagnosis of urinary tract infection by methods of urine bag, clean catch, bladder catheterization, suprapubic tap and know the indications and problems of each method.
4. To perform and interpret urinalysis, microscopy and understand the use and limitation of commonly used Dipstix.
5. To measure blood pressure accurately and interpret results in children of all ages, using mercury sphygmomanometer, oscillatory blood pressure monitor.
6. To organise investigation of glomerular and tubular function in children.

## **II. HIGHER TRAINING**

### **A. Knowledge**

An in-depth knowledge as listed in section I. A.

### **B. Skills**

1. To be more competent in skills mentioned in Section I. B.
2. To observe and assist percutaneous USG-guided renal biopsies.
3. To observe and assist in organising peritoneal dialysis for patients with acute renal failure, to perform insertion of catheters and order dialysis prescriptions (optional).
4. To observe and assist in organising continuous arterio-venous or veno-venous haemodiafiltration or haemodialysis. (optional).

### ***C. Attitudes***

1. See general attitudes
2. A paediatrician should be concerned about the psychological and social needs of children with chronic renal diseases and the effects on their families.

# NEUROLOGY AND DEVELOPMENTAL PAEDIATRICS

## I. INTRODUCTION

The period of training in neurology and developmental paediatrics as part of a structured subspecialty rotation within the 3-year Basic Training Programme, should preferably be limited to 3 months but definitely no more than 6 months. For the purpose of higher training in paediatrics, a trainee can spend no more than 1 year in neurology and developmental paediatrics within the 3-year Higher Training Programme.

## II. BASIC TRAINING

### A. *Knowledge*

1. Normal and abnormal neurodevelopment.
  - a) Normal neurological maturation profiles
  - b) Neurobiological and neurobiochemical basis of neurological and developmental disorders
  - c) Factors affecting development and common causes of disability
  - d) Early detection of developmental anomalies
  - e) Developmental screening or surveillance programme
  - f) Assessment of disabilities and handicaps (multidisciplinary, interdisciplinary, transdisciplinary)
  - g) Prevention of disabilities.
  
2. Recognition of clinical symptoms and signs, initiation of diagnostic tests and be able to outline the management of common neuro-developmental disorders.
  - a) Seizures, faints and “funny turns”
  - b) Acute onset of focal neurological signs
  - c) Infectious, para-infectious and post-infectious central nervous system disorders
  - d) Cerebral palsy: pathophysiology and associated disabilities
  - e) Hypotonia, ataxia, clumsiness and other movement disorders
  - f) Neuropathies and myopathies
  - g) Neural tube defects and other common congenital central nervous system malformations

- h) Head injury and birth trauma including brachial plexus injury
  - i) Neurodevelopmental regression.
3. Knowledge of the genetic bases of neurodevelopmental disorders.
  4. Warning signs of common developmental disorders.
  5. Basic knowledge on common developmental disorders
    - a) Mental retardation
    - b) Sensory impairment
    - c) Autism
    - d) Dyslexia
    - e) Attention deficit disorder.
  6. Management of common developmental problems.
  7. Understand the role, principles and cost-effectiveness of neurological investigations including neuroimaging, electro-diagnostic tests, biochemical studies.
  8. Pharmacology and monitoring of drugs used in neurological, muscular and psychiatric disorders.
  9. Understanding family reaction to disabilities and handicaps.
  10. Simple developmental guidance.
  11. Local rehabilitation services: access and when to refer.

***B. Skills***

1. Elicit a comprehensive and accurate neuro-developmental history.
2. Full neurological examination and ability to recognise serious neurological signs.
3. Recognise syndromes associated with developmental disabilities.

4. Lumbar puncture.
5. Developmental screening/assessment.
6. Simple tests of vision and hearing for children of different ages.
7. Simple developmental guidance.
8. Simple genetic counselling of common neurodevelopmental disorders.

### **C. Attitudes**

1. Early detection, early intervention of neurological and developmental disabilities.
2. Develop a commitment to advocacy for children with disabilities.
3. Understand the need to work with allied health professionals, teachers, welfare agencies and the family in the care and management planning of children with disabilities.

## **III. HIGHER TRAINING**

### **A. Knowledge**

1. Knowledge required for the Basic Training Programme in Child Neurology and Developmental Paediatrics, but in greater depth.
2. Interpretation of electroencephalograms, nerve conduction studies, electromyogram, evoked potentials (visual, auditory), neuro-radiological (CT, MRI) investigations.
3. Management of neurological disorders requiring intensive care.
4. Approach to neurodegenerative disorders.
5. In-depth knowledge of child development, its biological basis and an understanding of different theoretical approaches as they apply to a specific clinical problems. To understand and interpret the phenomena

- of normal development and its variations and developmental problems or deviations.
6. Clear knowledge and understanding of the effect of social and cultural forces on:
    - a) The acceptance of childhood developmental disorders
    - b) How families understand and cope
    - c) Services and provisions for the care of children.
  7. In-depth knowledge of neurodevelopmental disorders that affect child development and behaviour, including specific genetic syndromes, physical disorders such as cerebral palsy and spinal bifida, sensory impairment, disorders of attention, language and learning, pervasive developmental disorders, complex socio-emotional disorders.
  8. In depth knowledge of children's behavioural responses and their variations, and an understanding of social and cultural differences.
  9. Understanding of the evolution, natural history and challenges that children with neurodevelopmental and behaviour disorders and their families face as they grow up.
  10. In-depth knowledge of theories pertaining to the transactional issues shaping development and influencing parent-child and family relationships.
  11. Knowledge of the conceptual frameworks and operational methods of other professionals dealing with child development and behaviour (psychiatrist, psychologists, physiotherapist, occupational therapist, social workers, speech pathologist etc).
  12. To be familiar with the existing legislation that pertains to
    - a) Children with disability and their families
    - b) The prevention of disabilities
    - c) Child welfare legislation
    - d) Sections of criminal codes that relates to children.

## ***B. Skills***

1. Neurology
  - a) Full neurological examination, including soft neurological signs
  - b) Conduct simple developmental assessment
  - c) Be able to carry out muscle biopsy, nerve conduction study (NCV), electromyography (EMG), evoked potentials (EPs) under supervision

- d) Cerebral function monitoring procedures. (EEG, Video EGG)
  - e) Conduct evoked potential studies (optional).
2. Developmental Paediatrics
- a) To be able to integrate existing data and information obtained from interviewing and observing families, parents and children, and from the physical and neurodevelopmental examination of the child
  - b) To be active member of an interdisciplinary team responsible for the integration and formulation of clinical finding and to provide consultation to professionals or community agencies at the case and programme level
  - c) To have in-depth experience of assessment, management intervention technique and the longitudinal care of:
    - i) neurodevelopmental problems
    - ii) learning and school problems e.g. dyslexia, attention deficit
    - iii) behavioural and psychosocial difficulties
    - iv) cognitive impairment and disorders
    - v) family and parent-child relationship difficulties, in all paediatric age groups and all degrees of severity, including the medically fragile and multiple handicapped
  - d) To be familiar with available community resources and to be able to advocate for and work with policy makers and stakeholders to address these needs
  - e) To demonstrate administrative and organisational skills in clinical and other settings
  - f) To demonstrate knowledge of the principles of continuous quality improvement and their application.

### ***C. Attitudes***

1. To appreciate the inter-relationship of child neurology, developmental paediatrics, behavioural paediatrics and child psychiatry.
2. To emphasise the need to approach problems scientifically and ethically.
3. To appreciate the impact of a handicapping condition on the child, his /her family and society.
4. To recognise that the paediatrician has an active, and often supportive,

role in helping handicapped children to realise their potentials within the limitations of their disabilities.

5. To develop a sense of responsibility and leadership in the formulation and implementation of policy regarding medical and health care delivery issues relating to child neurology and developmental paediatrics.
6. To know when not to “treat” a neurological disorder.
7. To recognise that neuroscience is the basic of child neurology and developmental paediatrics.



# RESPIRATORY MEDICINE

## I. INTRODUCTION

The trainee in Respiratory Medicine should aim to acquire the skills to manage acute and chronic respiratory problems in the hospital ward, emergency department and in the specialist outpatient clinic. He should be able to advise patients and parents on the prevention of respiratory diseases and the promotion of respiratory health in the community.

## II. BASIC TRAINING

### A. *Knowledge*

1. Embryology and anatomy of the lung and respiratory passages.
2. Control of respiration.
3. Pulmonary physiology in the neonate and the child.
4. Respiratory failure: mechanism, diagnosis and treatment.
5. Pharmacology of drugs affecting the respiratory tract.
6. The addition of immunity and allergy diseases of the respiratory tract.
7. Physiology of the respiratory muscles.
8. Lungs and lower respiratory passages.
9. Suppurative lung diseases including empyema.
10. Pleural diseases including pleural effusion and pneumothorax.
11. Neuromuscular and skeletal diseases affecting the respiratory tract.

12. Knowledge of the clinical presentation and management of common respiratory disorders
  - a) Upper respiratory tract infections, including otitis media and sinusitis
  - b) Acute and chronic upper airway obstructions due to infection and to tonsillar and adenoidal hypertrophy, laryngomalacia, vallecular cysts, subglottic haemangiomas, angioedema
  - c) Aspiration of foreign bodies, inhalation of smoke and toxic substances
  - d) Lower respiratory tract infection including acute bronchiolitis, pulmonary tuberculosis, pneumonia and atypical pneumonia, empyema
  - e) Drowning and near-drowning
  - f) Asthma and related allergies of the respiratory tract
  - g) Pneumothorax
  - h) Congenital malformations including tracheo-oesophageal fistula, diaphragmatic hernia, congenital lobar emphysema and cystadenomatoid malformation
  - i) Acquired intra-thoracic tumours
  - j) Respiratory distress of the newborn, including respiratory distress syndrome, perinatal pneumonia, congenital cardiovascular malformations and persistent pulmonary hypertension of the newborn etc
  - k) Chronic lung diseases including bronchopulmonary dysplasia, cystic fibrosis
  - l) Respiratory problems of the immuno-compromised host
  - m) Obstructive sleep apnoea
  - n) Cervical lymphadenopathy.

## ***B. Skills***

1. Clinical skills
  - a) Basic and advanced cardiopulmonary resuscitation
  - b) Management of acute upper airway obstruction
  - c) Management of the mechanically ventilated child
  - d) Recognise life-threatening respiratory conditions in neonates, children and adolescents
  - e) Advance life support.

2. Technical skills
  - a) Throat and pernasal swab, nasopharyngeal aspirate
  - b) Peak flow rate measurement
  - c) Blood gas measurement
  - d) Administration of inhalational therapy
  - e) Spirometry
  - f) Thoracocentesis and insertion of chest drains
  - g) Obtaining a specimen for sweat electrolytes (optional).

### ***C. Attitudes***

1. Awareness of the role of the environment on respiratory diseases.
2. That children should not be exposed to either passive or active smoking, and should be protected from the effects of cigarette advertisements.
3. That primary and secondary prevention are very important in the prevention and control of respiratory diseases.

## **III. HIGHER TRAINING**

### ***A. Knowledge***

1. Interaction of the environment with the respiratory system.
2. Effect of smoking on the developing lung.
3. Pulmonary rehabilitation.
4. Administration and management of a lung function test laboratory.
5. Organisation of an asthma education programme.
6. Sleep related breathing disorders.
7. In depth knowledge of respiratory problems delineated in the Basic Training Programme.

## ***B. Skills***

1. Pulmonary function studies including diffusion and compliance studies in children and/or infants.
2. Experience/exposure to flexible bronchoscopy under sedation.
3. Newer modes of ventilation.
4. Performance of various allergy tests.
5. Sleep studies for the sleep disorders.
6. Monitoring of gastro-oesophageal reflux.
7. Applying specialised clinical and technical skills to solve complex respiratory problems.
8. Extra-corporal membrane oxygenation (optional).

## ***C. Attitudes***

1. Understanding of the need for multi-disciplinary approach in patient care and the willingness to solicit the help of other professionals, including physiotherapist, occupational therapist, nurse, and others.
2. Recognising that respiratory health starts from prevention in the community and every effort should be made to enhance such objective.

# CLINICAL PHARMACOLOGY

## **A. Knowledge**

1. Understanding of pharmacokinetics, pharmacodynamics, pharmacogenetics and therapeutic trials.
2. Drug absorption, bioavailability and metabolism in infants and children.
3. Drug indications for specific diseases.
4. Mechanisms of action of drugs.
5. Usefulness of plasma concentration monitoring of drugs.
6. Important drug interactions and common side effects of drugs used in paediatric practice.
7. Effects of diseases on drug kinetics.
8. Drug overdose, poisoning and antidote.
9. Cost of commonly used drugs.
10. Local and international regulatory agencies involved in drug use and licensing and implications of off-label use of drugs.
11. Local and international guidelines for pain relief in children.

## **B. Skills**

1. Ability to calculate dosages of commonly used drugs.
2. Ability to write correct and legible prescriptions.
3. Ability to explain the need for, use of, and side effects of drugs to patients and/or parents.
4. Ability to recognise side effects of drugs.
5. Modifications of drug dosage in disease states.

## **C. Attitudes**

See general attitudes.

# DERMATOLOGY

## **A. Knowledge**

1. Atopic and seborrhoeic dermatitis.
2. Bullous disorders of infancy and childhood.
3. Bacterial, viral, fungal and parasitic infections of the skin.
4. Cutaneous and mucosal manifestations of systemic diseases and reactions to drugs.
5. Psoriasis and its management.
6. Cutaneous tumours and neurocutaneous syndromes.
7. Disorders of sebaceous and sweat glands and hair.
8. Understand the principles of treatment for different dermatological conditions.

## **B. Skills**

1. Diagnostic dermatologic methods.
2. Glossary of dermatological terms and topical formulary for the paediatrician.

## **C. Attitudes**

See general attitudes.

# OPHTHALMOLOGY

## **A. Knowledge**

1. Structure and function of the eye, ocular muscles and visual pathways.
2. Embryology of the eye.
3. Classification and aetiology of the types of visual defects in children.
4. Ocular manifestations
  - a) of systemic disease, including hyperthyroidism, neuroblastoma, allergy
  - b) of disease of the nervous system, including increased intracranial pressure.
5. Infections and inflammation of the eye.
6. Cataract, glaucoma and corneal abnormalities.
7. Retinal disorders including retinopathy of prematurity.
8. Tumours and phakomatosis.
9. Local school and other resources for children with visual impairment.

## **B. Skills**

1. Test of visual acuity in children of different ages.
2. Assess visual fields by confrontation method and represent visual field by a diagram.
3. Recognise and describe position and movement of the eyes, and detect squint .
4. Ability to examine the eye and recognise those abnormalities which require urgent referral or treatment..
5. Ability to test for colour vision.
6. Fundoscopic examination of the eye.

## **C. Attitudes**

See general attitudes.

# OTORHINOLARYNGOLOGY

## **A. Knowledge**

1. Anatomy and physiology of the ear.
2. Assessment and remedial approaches to the hearing-impaired child.
3. Disorders of middle and outer ear.
4. Disorders of the nose, sinus and palate, e.g. epistaxis, choanal atresia, sinusitis, cleft palate.
5. Inflammation and infection of the oral mucosa and upper airway.
6. Syndromal disorders involving malformation of the mandible, ear and upper airway.
7. Aetiology and management of upper airway obstruction.
8. Local school and other resources for children with hearing impairment.

## **B. Skills**

1. Test of hearing in children of different ages.
2. Use of otoscope and nasal speculum.
3. Interpretation of radiological investigations of the upper airway and sinuses.
4. Principles and practice of caloric test.

## **C. Attitudes**

See general attitudes.



## ACCREDITATION OF TRAINING

### 1. General Information

In compliance with the regulations of the College, accreditation of two levels of training will be required :

- a) three years of Basic Training Programme
- b) three years of Higher Training Programme

An institution may be accredited for training in general paediatrics and/or one or more of the paediatric subspecialties. Institutions would be assessed individually or in clusters for suitability of basic and higher training and the duration of each level of training recognized will depend on the outcome of the assessment by an accreditation team of Fellows appointed by the College.

Currently, higher training in Paediatrics is considered as higher training in General Paediatrics.

### 2. Subspecialties

The following subspecialties are being considered for subspecialty accreditation :

1. Adolescent Medicine
2. Cardiology
3. Clinical Genetics
4. Developmental Paediatrics
5. Endocrinology and Metabolism
6. Gastroenterology and Hepatology
7. Haematology and Oncology
8. Immunology & Infectious Diseases
9. Intensive Care
10. Neonatology
11. Nephrology
12. Neurology
13. Respiratory Medicine

### 3. Accreditation of Local Institutions for Basic Training

#### 3.1 Institution

- 3.1.1 The facilities provided for training in an institution should follow the guidelines of the Hong Kong Academy of Medicine.
- 3.1.2 All institutions must carry out regular audit of clinical activities.
- 3.1.3 All institutions must provide a regular education programme for trainees in the form of ward teaching, case discussion, case conference and journal club.
- 3.1.4 The institution must provide the trainees with sufficient clinical experience and responsibility on both in-patient and out-patient care.
- 3.1.5 Standardization of terms:  
Team : for use in institution to identify number of training team  
Module\*\* : for use in individual trainee's training programme
- 3.1.6 The institution should consist of one or more basic functioning teams\*, each of which is staffed by one or more trainers of the College. Each functioning team should normally be responsible for the care of not less than 10 **patients** and not more than 30 **patients** of the paediatric age group (1 month to 18 years, excluding neonates). Each team should consist of one or more trainers who can supervise the training of not more than 2 basic and 1 higher trainees (or 1 basic and 2 higher trainees) at any one time.
- 3.1.7 The duration of accredited training of an institution would be assessed as follows:  
Duration of recognition for the core programme of 2 years: e.g.
- 2 functioning teams, or neonatology + 1 functioning team  
= 12 months (2 modules\*\* for trainee)
  - 3 functioning teams, or neonatology + 2 functioning teams  
= 18 months (3 modules for trainee)
  - Neonatology + 3 functioning teams  
= 24 months (4 modules for trainee)
- 3.1.8 An institution should have a minimum of 4 trainers, including a trainer in neonatology, before it could be accredited fully for the 3-year Basic Training Programme.

- \* **Basic unit for training in an institution to identify the number of training teams available.**
- \*\* **one module is defined as a 6-month period of the trainee's programme**

### **3.2 Teams in General Paediatrics**

- 3.2.1 The minimum average number of patients looked after per team per day is 10 provided that there is adequate ambulatory paediatric service within the training centre to provide additional exposure. Thus an institution can have one or more teams.
- 3.2.2 Basic training should avoid excessive subspecialty exposure.
- 3.2.3 The scope of “Extended Hospital Activities Accreditable for College Training in Paediatrics” should include:
  - i) care of patients referred for acute paediatric problems but not admitted into hospital
  - ii) follow up sessions as day patients
  - iii) conventional procedures which used to be carried out as inpatient but could now be performed in the day centre
  - iv) others to be defined in the course of time

### **3.3 Teams in Neonatology**

An institution accredited for the full 3-year Basic Training Programmes should include at least one neonatology team providing an active neonatal service with a minimum delivery rate of 1,400 per annum within the obstetrical unit. An institution can be accredited for one or more training teams in neonatology depending on the annual delivery statistics. Apart from patient load, disease spectrum, intensive care facilities and team structure are other factors that have to be assessed for accreditation. The neonatal team should be supervised by one or more trainers of the College.

### **3.4 Teams in Paediatric Intensive Care (PICU)**

A paediatric intensive care team would be accredited as a subspecialty team for the purpose of Basic and Higher General Paediatric Training if it cared for at least 4 patients per day in the Hospital Authority designated PICU beds. Apart

from patient load, disease spectrum, intensive care facilities and team structure are other factors that have to be assessed for accreditation. The PICU team should be supervised by one or more trainers of the College.

### **3.5 Teams in subspecialties or age-orientated wards**

The accreditation of subspecialty teams or age-orientated teams for the purpose of Basic or Higher Paediatric Training (see section 7.4.a. iii and iv) will be based on the existing guidelines for a training team, namely 10-30 inpatients per day under a qualified trainer

### **3.6 Trainer and Trainee Ratio**

- 3.6.1 Each team should consist of one or more trainers supervising the training of not more than 2 basic and 1 higher trainees (or 1 basic and 2 higher trainees). Family Medicine trainees or trainees in other training programmes will be counted in the trainer : trainee ratio in the consideration of the Basic Training Programme.
- 3.6.2 Throughout the 3-year of Basic Training Programme including the 6-month mandatory module in Maternal and Child Health / Child Assessment Centres and 6-month flexible training programme, the basic trainee is not allowed to be supervised by the same trainer for more than twelve months.
- 3.6.3 The trainer-trainee mapping for basic training from each institution should be submitted six-monthly, in January and July of each calendar year. Statistics of total patient-days in the general paediatrics teams, PICU and other subspecialty teams and total number of deliveries should accompany each 6-monthly submission. COSs of respective training centres should periodically update their number of trainers and trainees. COSs should ensure accurate submission and appropriate matching between trainers and trainees.
- 3.6.4 For those training teams which have more trainees than the available training posts, the accredited period of training for each trainee in the team will be adjusted by a ratio of the number of available training posts to the actual number of trainees in the team. This rule will be applied to all categories of trainees in the team whether from the host institution or another institution or other specialties.

### **3.7 Procedures**

- 3.7.1 A new set of guidelines and check-list for accreditation revisits is available from the Honorary Secretary of the Accreditation Committee.
- 3.7.2 The COS of an institution or hospital cluster should apply to the Accreditation Committee for accreditation of the institution or hospital cluster for Basic and Higher training. Certificates of Accreditation (valid for 5 years) would be awarded to all accredited institutions/hospital clusters. Re-visit will be made to each institution/hospital cluster at least once every five years. Application to the Accreditation Committee for re-accreditation should be accompanied by documentation detailing changes in clinical and supporting services provided by that institution/hospital cluster which may have an effect on the training programme.
- 3.7.3 For new training institutions, it has been agreed that the approval of accreditation should start on the date of the accreditation visit. For the accreditation of additional modules (through submission of additional statistical data), approval of accreditation could be backdated to the date when all the data has been completely vetted and approved by the Accreditation Committee.
- 3.7.4 Accreditation of training centres for child health related specialties as part of the General Paediatrics training programme (e.g. Maternal and Child Health Centres, Accident and Emergency Departments, and Child Psychiatry Units) should be assessed on an individual basis, centre by centre.

### **4. Accreditation of Overseas Institutions for Basic Training**

- 4.1 Where applicable, the Council would take reference from posts and programmes accredited by the postgraduate authorities of the United Kingdom, Australia, New Zealand, United States of America and Canada.
- 4.2 The College reserves the right to write to the supervisors and training authorities in which the trainees had gained their experiences for further information or clarification.

## **5. Accreditation of Local Institutions for Higher Training**

### **5.1 Institution**

- 5.1.1 The facilities provided for training in an institution should follow the guidelines of the Hong Kong Academy of Medicine.
- 5.1.2 All institutions must carry out regular audit of clinical activities.
- 5.1.3 All institutions must provide a regular education programme for trainees in the form of ward teaching, case discussion, case conference and journal club.
- 5.1.4 The institution must provide the trainees with sufficient clinical experience and responsibility in both in-patient and ambulatory care.
- 5.1.5 An institution must provide the trainee with sufficient experience and increasing responsibilities in the following areas:
  - i) clinical service
  - ii) supervision of junior doctors
  - iii) teaching
  - iv) administration
  - v) academic and scientific activities
  - vi) research

There should be proper documentation of higher level of responsibility for the trainee (e.g. on call duty list, supervisory or administrative work) endorsed by the supervisor or chief of service.

- 5.1.6 An institution should have sufficient expertise in subspecialties recognized for training and should provide adequate:
  - i) trainers
  - ii) facilities and services as in the infrastructure, equipments, etc.
  - iii) case load and case-mix
  - iv) research opportunities
- 5.1.7 An institution should provide training on knowledge and skills for the trainees according to the curriculum laid down by the Education Committee for the subspecialty training.

- 5.1.8 A sufficient number of special procedures related to that subspecialty has to be performed in accordance with approved standards as laid down by the Education Committee.

## **5.2 Trainer to Trainee Ratio**

- 5.2.1 Each team should consist of one or more trainers supervising the training of not more than 1 basic and 2 higher trainees (or 2 basic and 1 higher trainees). Family Medicine trainees or trainees in other training programmes will be counted in the trainer : trainee ratio in the consideration of the Basic Training Programme.
- 5.2.2 Each trainer could supervise the training of not more than 2 trainees. In an institution, the total number of trainees admitted into the Higher Training Programme should not exceed twice the number of trainers for that subspecialty. For both trainers and trainees, a substantial proportion of the duties (more than 50% of the work) should be spent in that subspecialty.
- 5.2.3 The trainer-trainee mapping for higher training should be submitted six-monthly, in January and July of each calendar year. COSs of respective training centres should periodically update their number of trainers and trainees. COSs should ensure accurate submission and appropriate matching between trainers and trainees.

## **5.3 Procedure**

- 5.3.1 A new set of guidelines and check-list for accreditation revisit is available from the Honorary Secretary of Accreditation Committee.
- 5.3.2 The COSs of an institution/hospital cluster should apply to the Accreditation Committee for accreditation of the institution/hospital cluster for Higher Training in Paediatrics. Certificates of Accreditation (valid for 5 years) are awarded to all accredited institutions/hospital clusters. Re-visit will be made to each institution/hospital cluster at least once every five years. Application to the Accreditation Committee for re-accreditation should be accompanied by documentation detailing changes in clinical and supporting services provided by that institution/hospital cluster which may have an effect on the training programme.

## **6. Accreditation of Overseas Institutions for Higher Training**

- 6.1 Where applicable, the Council would take reference from posts and programmes accredited by the postgraduate authorities of the United Kingdom, Australia, New Zealand, United States of America and Canada.
- 6.2 The College reserves the right to write to the supervisors and training authorities in which the trainees had gained their experiences for further information or clarification.

## **7. Accreditation of Basic Training Programme undertaken by Trainees in Local Institutions**

- 7.1 The trainee should be a paid up Associate of the College.
- 7.2 The training programme should be continuous unless approved by the Accreditation Committee.

Trainees applying for recognition of interrupted training should fulfill the following criteria :

- i) the interruption should normally be less than one year for consideration of the 6-year training programme
- ii) there must be a justifiable reason for the interruption, either because of medical or other compassionate reason
- iii) the trainee should show his / her intention for further training
- iv) any one period of interruption should not be more than 12 weeks without the need for additional training
- v) a maximum of 24 weeks of cumulative leave (leave other than the entitled statutory leave, annual leave and casual leave) would be allowed during the trainee's 6-year of training period, where not more than 12 weeks would be allowed during either the Basic or Higher Training period
- vi) only one period of continuous or cumulative 12-week leave would be allowed (other than the entitled statutory leave, annual leave and casual leave) during each of the 3-year Basic Training Programme or Higher Training Programme. Trainees taking leave more than that would be required to extend his/her training period to make up for the interruption in excess of 12 weeks during either Basic or Higher Training
- vii) all trainees should fulfill the compulsory Basic Training modules, i.e. the 6-month Neonatology and the 6-month Maternal and Child Health /



- Child Assessment Centres rotation training despite he/she being allowed to take a maximum of 12 weeks continuous leave
- viii) a declaration of any interruption of training should be made by the trainee entering into Basic or Higher Training on or after 1st January 2004, on his/her application for Membership and Exit Assessment
  - ix) must follow the regulations laid down by the Academy (including the Grandfather clause: By-Law 16)
  - x) final decision is at the discretion of the College Council.
- 7.3 The trainee must apply to join the College as an Associate, through the recommendation of the COS, within 6 months of joining as a trainee in the Basic Training Programme of an accredited institution/hospital cluster. The trainee should periodically update his/her logbook. Verification will be carried out by the Membership Committee by checking the logbook upon application for membership.
- 7.4 The programme should be 3 years and consists of a core programme of 2 years duration and a flexible programme of 1 year duration.
- a) the 2-year core programme consisting of 4 modules of 6 months each:
    - i) 18 months of general paediatrics (3 modules\*) and each 6-month module would be under the supervision of a basic functioning team\* staffed by one or more trainers of the College
    - ii) 6 months of neonatology training (1 module) supervised by a team consisting of one or more trainers of the College and at least one module of neonatology is required before a trainee could be accredited as completing his / her basic training
    - iii) In hospitals with established subspecialty teams, an accredited standardized rotation of trainees through different subspecialties for 18 months and for 6 months in neonatology will also be accepted as core programme of the Basic Training Programme. Subspecialty rotations during the 2-year core programme should preferably be not more than 3 months but definitely not more than 6 months for each subspecialty rotation. Trainees should not rotate through these subspecialties again in the 6-month flexible programme (the exception being neonatology and a trainee is allowed to have a further 6-month training during the flexible programme)
    - iv) In training units with age-orientated wards, the rotation of a trainee

through such wards during the 3-year Basic Training Programme should normally be evenly distributed.

**\* One module is defined as a 6-month period of the trainee's programme**

**“Team” is a basic unit for training in an institution, staffed by one or more trainers, to identify the number of training teams available.**

- b) 6 months mandatory training in accredited Maternal and Child Health / Child Assessment Centres for all Associates entering into basic training on or after 1st July 2003.
- c) the 6-month flexible programme (for trainees who join the Basic Training Programme on or after 1st July 2003) :
  - i) this can be carried out in general paediatrics or in a number of subspecialties including neonatology (and excluding Maternal Child Health Service, Child Assessment Service and Clinical Genetics Service), but the duration spent in any 1 subspecialty should not be more than 6 months; (a trainee can only be trained in neonatology for a maximum of 12 months during the 3-year Basic Training Programme)
  - ii) upon recommendation by the supervisor, a total duration of not more than 6 months could be spent in 1 or more of the following disciplines:  
e.g. Paediatric Surgery, Accident and Emergency Service, Child Psychiatry and other disciplines as approved by the Council
  - iv) prospective application for accreditation in a child health related specialty and other non-accredited centres is required.
- d) for trainees who started their basic training before 1st July 2003, the 1-year flexible programme would be governed by the regulations stipulated in page 98 of the College Guidelines on Postgraduate Training and Accreditation published in 1995.

7.5 The trainees should have adequate exposure to in-patients and out-patients according to the guidelines laid down for basic training.

- 7.6 Excessive subspecialty exposure by a trainee during the Basic Training Programme should be avoided. Although it is difficult to distinguish between general and subspecialty training, supervisors and trainees should observe and follow the training guidelines.
- 7.7 Throughout the three years of basic training (including the flexible 6 month module), the basic trainee is not allowed to be supervised by the same trainer for more than twelve months.
- 7.8 With effect from 1st July 2005, all applications for Membership by a trainee must be accompanied by a Certificate of Attendance and successful completion of the assessment of the Paediatric Advanced Life Support (PALS) Course or its equivalent.
- 7.9 The Chief of Service of a training institution must inform the College Accreditation Committee when there is any change in the bed status and functional designation of beds because these may affect the accreditation of the training teams in that institution.

## **8. Accreditation of Basic Training Programme undertaken by Trainees in Overseas Institutions**

- 8.1 Local trainees who wish to undergo training in overseas institutions should first apply prospectively to the College to have their training assessed at least 3 months before the beginning of training.
- 8.2 Each training programme would be assessed individually. The accreditation would be conditional upon provision of evidence of satisfactory completion of training in the specified institution.
- 8.3 Trainees from abroad may apply to the College for retrospective accreditation of part or all of the training gained in overseas institutions. (Refer to Section 12)
- 8.4 Each application would be assessed individually. The applicant should submit detailed information on the training institution and the training undertaken by the trainee and references from the former supervisors.
- 8.5 The Accreditation Committee may write to the supervisors to obtain relevant information.

## **9. Accreditation of Higher Training Programme undertaken by Trainees in Local Institutions**

- 9.1 The trainee should be a Member of the College.
- 9.2 The training programme should be continuous unless approved by Accreditation Committee.

Trainees applying for recognition of interrupted training should fulfill the following criteria :

- i) the interruption should normally be less than one year for consideration of the 6-year training programme
  - ii) there must be a justifiable reason for the interruption, either because of medical or other compassionate reason
  - iii) the trainee should show his / her intention for further training
  - iv) any one period of interruption should not be more than 12 weeks without the need of additional training
  - v) a maximum of 24 weeks of cumulative leave (leave other than the entitled statutory leave, annual leave and casual leave) would be allowed during the trainee's 6-year of training period, where not more than 12 weeks would be allowed during either the Basic or Higher Training period
  - vi) only one period of continuous or cumulative 12-week leave would be allowed (other than the entitled statutory leave, annual leave and casual leave) during each of the 3-year Basic Training Programme or Higher Training Programme. Trainees taking leave more than that would be required to extend his/her training period to make up for the interruption in excess of 12 weeks during either Basic or Higher Training
  - vii) a declaration of any interruption of training should be made by the trainee entering into Basic or Higher Training on or after 1st January 2004, on his/her application for Membership and Exit Assessment
  - viii) must follow the regulations laid down by the Academy (including the Grandfather clause: By-Law 16)
  - ix) final decision is at the discretion of the College Council.
- 9.3 The Associates must apply to the Membership Committee (with the necessary documentations) to become a Member of the College, through the recommendation of the COS, within 6 months of completion of the Basic Training Programme. After approval, Members will enter into the 3-year Higher Training Programme. The trainee should periodically update his/her log sheets.

The trainee should make a declaration on fulfilling the collegial requirements (to be endorsed by COS or training supervisor) before applying for the Exit Assessment. Verification will be carried out by the Examination Committee by checking the log sheets and the training undertaken. A provisional acceptance on the basis of valid declaration will be issued.

9.4 The duration of training should be 3 years. General Paediatrics would be the foundation for the training. For the time being, only FHKCPaed without any subspecialty designation will be awarded to all trainees who have completed their training programme in general paediatrics. For this reason, the total time spent on the training in any one paediatric subspecialty would have to be limited to no more than 12 months (see below) within the 3-year programme.

#### 9.5 General Paediatrics

For the time being, the higher training in Paediatrics is equivalent to higher training in General Paediatrics. Higher training in subspecialties would be implemented at a later stage (to be defined) at which time General Paediatrics will be regarded as one of the subspecialties.

##### **For trainee who commenced his / her higher training before 1.7.1997:**

- i) not more than 12 months should be spent in any one subspecialty
- ii) at least 6 months should be spent in other local or overseas institutions (prospectively approved).

A flexible approach will be taken on accrediting higher training commenced before 1.7.1997.

##### **For trainee who commenced his / her higher training on or after 1.7.1997 and before 1.7.2000:**

- i) at least 1 year hospital-based acute general paediatrics with acute emergency hospital admission of children not restricted to any age group or subspecialty
- ii) not more than 12 months should be spent in any one subspecialty
- iii) at least 6 months should be spent in other local or overseas institutions (prospectively approved).

A flexible approach will be taken on accrediting higher training commenced on or after 1.7.1997 and before 1.7.2000.

**For trainee who commenced his / her higher training on or after 1.7.2000 and before 1.7.2001:**

- i) at least 2 years hospital-based paediatrics of which at least 1 year should be in acute general paediatrics with acute emergency hospital admission of children not restricted to any age group or subspecialty
- ii) not more than 12 months should be spent in any one subspecialty
- iii) at least 6 months should be spent in other local or overseas institutions (prospectively approved).

A flexible approach will be taken on accrediting higher training commenced on or after 1.7.2000 and before 1.7.2001.

**For trainee who commenced his / her higher training on or after 1.7.2001:**

- i) at least 2 years hospital-based paediatrics of which at least 1 year should be in acute general paediatrics with acute emergency hospital admission of children not restricted to any age group or subspecialty
- ii) not more than 12 months should be spent in any one subspecialty; and not more than 6 months out of these 12 months should be spent in any one child health related specialties (required prospective approval by the Accreditation Committee)
- iii) at least 6 months clinical training should be spent in other local or overseas institutions (prospective approval required)
- iv) full time medical research training leading to a child health related master or doctorate degree or other defined outcomes can be accredited up to a period of 6 months towards the 12-month paediatric subspecialty training in the 3-year Higher Training Programme (prospective accreditation required).

**The above criteria will be strictly enforced in accrediting higher training undertaken by trainees who entered into the Higher Training Programme on or after 1.7.2001.**

**9.6 Definition of teams and modules used in the Basic Training Programme are also applicable to the Higher Training Programme.**

9.7 With the implementation of a compulsory 6-month training module in a Maternal and Child Health Clinic (MCHC) cluster / Child Assessment Service (CAS) for trainees entering into basic paediatric training on or after 1st July 2003,

any further training in MCHC/CAS during the Higher Training Programme is subjected to prospective accreditation of an advanced programme offered by the MCHC Cluster/CAS. The application for accreditation must be submitted to the Accreditation Committee at least 3 months prior to the commencement of training.

## 9.8 Subspecialty

Accreditation for higher training in paediatric subspecialties is now being actively explored by the Task Force for Higher Training of Paediatric Subspecialties, the Education and Accreditation Committees. Further details will be available in due course.

## 10. Accreditation of Higher Training Programme undertaken by Trainees in Overseas Institutions

10.1 The trainee should be a Member of the College.

10.2 The training programme should be continuous unless approved by Accreditation Committee.

Trainees applying for recognition of interrupted training should fulfill the following criteria :

- i) the interruption should be less than one year for consideration of the 6-year training programme
- ii) the trainee should show his / her intention for further training
- iii) there must be a justifiable reason for the interruption, either because of medical or other compassionate reason
- iv) members entering into Higher Training on or after 1st January 2004 who has cumulative or continuous interruption of training in excess of 12 weeks excluding entitled leave must make declaration when he/she applies for Exit Assessment
- v) interruption of training more than 12 weeks during the 3-year Higher Training Programme (trainees starting Higher Training on or after 1st January 2004) must be made up with additional training and the trainee must satisfy all the training requirements set out in section 9.5
- vi) must follow the regulations laid down by the Academy (including the Grandfather clause)
- vii) final decision is at the discretion of the College Council.

- 10.3 Trainees who wish to undergo higher training in overseas institutions should apply prospectively to the Accreditation Committee at least 3 months before the commencement of overseas training.
- 10.4 Trainees must supply the following documents and information to the Accreditation Committee for prospective approval 3 months before commencement of overseas training:
- i) Application letter for prospective approval
  - ii) Period of overseas training and duration
  - iii) Subspecialty, Institution/Training Centre, Country
  - iv) Name of supervisor
  - v) Institution information: background of the institution and institution accreditation status (whether it is a locally accredited training centre for the paediatric subspecialty)
  - vi) Preliminary Training Programme (activities involved)
  - vii) Undertaking by applicant on the status of the institution that it is a locally accredited training centre for the paediatric subspecialty
  - viii) Acceptance letter from overseas training centre
  - ix) Recommendation letter by local training supervisor/COS
- 10.5 Applications will not be processed unless all required documents are submitted with preliminary approval by the COS/training supervisor. All overseas higher training applications will be acknowledged and outstanding information will be requested. The Accreditation Committee accepts that all the necessary information and documentation required may not be available before commencement of overseas training. If the trainee responds by giving a valid reason why such documentation is not available and undertake to provide the outstanding information and documentation within 3 months upon return from training overseas, this would be acceptable to the Committee. A preliminary approval by the Honorary Secretary of the Accreditation Committee will be issued after the application has been approved by the Accreditation Committee.
- 10.6 Unless a valid reason is provided for a trainee's inability to provide the necessary documentation prior to commencement of overseas training, submission of the necessary documentation upon completion of overseas training for accreditation will be treated as retrospective accreditation subjected to an administrative charge of HK\$2,000. This regulation will be strictly enforced with effect from the 1st January 2004.**



- 10.7 The trainee should submit the following information within 3 months upon return from training to the Accreditation Committee for final approval of his higher training at the overseas institution:
- i) Application letter for final approval
  - ii) Training report by the applicant, including the finalized full training programme and duty roster
  - iii) Training summary and log sheet, duly signed by the overseas supervisor
  - iv) Summary of project and/or publication achieved during the training period
  - v) Declaration by trainee that the information submitted is true and accurate
  - vi) Local supervisor's evaluation together with recommendations towards accreditation

The Committee reserves the right to write to the supervisor abroad directly for additional information.

- 10.8 If all the criteria as required by the Accreditation Committee are satisfied, a letter of accreditation will be issued to the trainee as official approval of his higher training at the overseas institution.

## **11. Accreditation of Trainers in General Paediatrics at Local Institutions**

- 11.1 Application for trainer status can be made to the Accreditation Committee upon recommendation and endorsement by the COSs or training supervisors of a training institution/hospital cluster. The curriculum vitae of trainers, together with their indicated subspecialty interest, should be submitted for consideration.
- 11.2 A trainer must normally be a Fellow of the College. He should be practicing in a College accredited training institution/hospital cluster. Trainers who are not Fellows should have approval from the College Council. Special recognition may be given on an individual basis.
- 11.3 For trainers in General Paediatrics, a substantial proportion of the duties (more than 50% of the work) should be spent in General Paediatrics.
- 11.4 Certificates for trainers will be issued to all approved trainers by the College biannually.

- 11.5 From 16th March 2004 and thereafter, any Fellows of the College applying to be a trainer for the first time will only be appointed as a trainer in the Basic Training Programme unless he / she has more than 3 years of post-Fellowship clinical experience in an accredited training institution.
- 11.6 From 16th March 2004 and thereafter, all existing College appointed trainers will qualify as trainers in both the Basic and Higher Training Programme; after 16th March 2004, a Fellow will only be appointed as a trainer in the Higher Training Programme if he / she has more than 3 years of clinical experience in an accredited training institution.

## **12. Application for Retrospective Accreditation of Training in Paediatrics**

- 12.1 The applicant should be a paid-up Associate or Member of the College.
- 12.2 The applicant should write to the Honorary Secretary of the College, citing the retrospective nature of the application.
- 12.3 The Honorary Secretary would redirect the application to the Accreditation Committee.
- 12.4 The Honorary Secretary of the Accreditation Committee would then send out the standard forms to the applicant.
- 12.5 The applicant would have to return the application forms with details of his/her training and date of passing the Intermediate Examination of the College or its equivalent (**Appendix BI**).
- 12.5.1 The reasons for not applying for prospective accreditation of training should be explained.
- 12.5.2 He/she would have to declare that there has been no interruption of his/her training, or give reasons for any interruption taken during his/her training.
- 12.5.3 He/she would have to prepare a statement declaring that all information supplied are correct.
- 12.5.4 An administrative fee of HK\$10,000 would have to be submitted before the application will be processed.
- 12.6 The applicant would have to supply the names of two Trainers as his/her referees.

- 12.7 The Supervisor or Head of Department of the institution would be requested to certify the training activities taken by the trainee applying for retrospective accreditation.

### **13. Guidelines on the Criteria for the Accreditation of a Paediatric Subspecialty Training Programme**

- 13.1 The Subspecialty Programme must fulfill the Guidelines for Recognition of Academy College of the Hong Kong Academy of Medicine.

13.1.1 The subspecialty exists only within the Paediatric specialty

13.1.2 The subspecialty must share with the specialty of paediatrics a significant part of training and assessment, including basic training and entry assessment

13.1.3 The subspecialty should satisfy the following criteria according to the guidelines of the Hong Kong Academy of Medicine:

- i) the subspecialty is needed in Hong Kong
- ii) the subspecialty is new and different from existing subspecialties
- iii) the knowledge, skills and practice required by that subspecialty are identifiably distinct and are deemed appropriate and compatible with the practice of paediatrics
- iv) the subspecialty exists in other countries
- v) the subspecialty is recognised at the institutional level; with the appointment of academic staff for that subspecialty at the Associate Professor level in a university in Hong Kong or the appointment of a Consultant for that subspecialty in one of the Hospital Authority Hospitals or the Department of Health
- vi) the subspecialty has the administrative support of the Hong Kong College of Paediatricians.

- 13.2 The subspecialty is supervised by a Subspecialty Board and is represented by the Hong Kong College of Paediatricians at the Academy.

13.2.1 The Subspecialty Boards are under the supervision of the Director of Subspecialty Boards of the Hong Kong College of Paediatricians. The operations of the Subspecialty Boards are subjected to the approval by Council. The post of Director of Subspecialty Boards will need to be endorsed by Council and put into the Bye-law of the College.

- 13.2.2 The Subspecialty Board is responsible for
- i) setting the accreditation guidelines for the training programme in a subspecialty
  - ii) accreditation of the subspecialty programme
  - iii) setting the criteria for accreditation of training modules\* within the training programme
  - iv) accreditation of an institution for the duration and type of training allowed by the Subspecialty Board
  - v) accreditation of Subspecialty Training Programme Directors and Subspecialty Trainers
  - vi) ensuring a high standard of practice in that subspecialty comparable to that in centres overseas by arranging peer review of proposed Subspecialty Training Programme
  - vii) appointment of examiners and organization of subspecialty board examinations
  - viii) the administration, organisation and validation of continuing medical education / continuing professional development (CME/CPD) which must be fulfilled by all Fellows in that subspecialty within the CME requirement for paediatrics of the Hong Kong College of Paediatricians.

\* One module is defined as a 6-month period within the training programme.

- 13.2.3 The composition of the Subspecialty Board should include 6 Fellows of that subspecialty of the College:
- i) whenever possible, five Fellows in that subspecialty should be appointed from the University, Hospital Authority, Department of Health and the private sector.
  - ii) one Fellow appointed by Council
  - iii) the Chairman of the Subspecialty Board will be elected by the Subspecialty Board members and appointed by Council.

### **13.3 The Subspecialty Training Programme should fulfill the following criteria:**

- 13.3.1 Service need of the subspecialty in Hong Kong must be clearly demonstrated and a sound service infrastructure must be well established in the training institutions.

- 13.3.2 The duration of subspecialty training shall be at least 3 years and should normally follow the Higher Training Programme in Paediatrics with only up to one year of overlap allowed between the two programmes. (Basic Training Programme 3 years + Higher Training in General Paediatrics 2 years + Higher Training in a paediatric subspecialty 1 year + Subspecialty Training Programme 2 years)
- 13.3.3 The duration of clinical training should be 24 to 36 months
- 13.3.4 Research activities (which could be clinical, laboratory or epidemiological research or other relevant academic activities) are mandatory as evidenced by the submission of dissertations for the Subspecialty Board examinations or by publication.
- 13.3.5 The maximum duration of retrospective or prospective recognition for a relevant full-time research postgraduate degree should be 6 months after assessment by the Subspecialty Board.
- 13.3.6 Teaching and administrative duties in the subspecialty should ordinarily be required as part of the training programme
- 13.3.7 Acquisition of higher qualifications and overseas training is encouraged as evidence of personal professional development
- 13.3.8 The programme must satisfy all the subspecialty training requirements determined by the Subspecialty Board
- 13.3.8.1 The content of the training programme must be comparable to similar training programme in that subspecialty overseas; information on at least two overseas training programme in that subspecialty must be provided
- 13.3.8.2 The Subspecialty Training Programme must have
- a) a clearly defined set of educational and professional objectives in terms of acquisition of knowledge in basic and clinical science, skills and attitudes relevant to the subspecialty.
  - b) a detailed well-defined curriculum.
  - c) an appropriate administrative structure of programme director, trainers, continuous assessment of progress and annual report on individual subspecialty trainees.
  - d) an organized programme of clinical rotation and other educational experiences, both mandatory or elective, designed to provide each trainee with the opportunity to fulfill the comprehensive educational requirements and achieve competence in that subspecialty.
  - e) Portfolio assessment and successful attempt at the subspecialty

Board Examination is required for conferment of Fellowship in the Subspecialty of the Hong Kong College of Paediatricians.

- 13.3.8.3 An individual trainee should be under the supervision of at least two accredited subspecialty trainers during the 3-year subspecialty training programme
- 13.3.8.4 A trainer can supervise no more than two trainees either in the Subspecialty Training Programme or in the Higher Training Programme in Paediatrics at any one time.
- 13.3.8.5 A subspecialty trainee can receive his/her supervised training in at least two but not more than four accredited institutions/ departments in an accredited subspecialty training programme. There should be a significant period (to be defined by the Subspecialty Board) during the subspecialty training programme that the trainee has intensive and a substantial proportion of subspecialty exposure in one of the training centers.
- 13.3.8.6 The programme should be continuous.
  - a) Any one period of interruption should not be more than 12 weeks.
  - b) Only one period of continuous or cumulative 12-week leave would be allowed (other than the entitled statutory leave, annual leave and casual leave) during the 3-year Subspecialty Training Programme. Trainees taking leave more than that would be required to extend his/her training period to make up for the interruption in excess of 12 weeks during the subspecialty training.
  - c) A declaration of any interruption of training should be made by the trainee on his/her application for Subspecialty Board Examination.

#### **13.4 Accreditation of an institution providing training in a subspecialty training programme**

- 13.4.1 The institution must provide an adequate clinical service in that subspecialty as required by the Subspecialty Board.
- 13.4.2 The institution must have adequate supportive and investigational facilities for the delivery of a subspecialty clinical service which is stipulated by the Subspecialty Board.
- 13.4.3 The Subspecialty Board will determine the duration of subspecialty training accredited in an institution which is dependent on the

clinical activity load, the case mix, allied health and other support and the number of accredited subspecialty trainers working in that institution.

- 13.4.4 The training institution must provide in-service and continuing medical education / continuing professional development in that subspecialty in the form of regular journal club, grand rounds, seminars, X-ray meetings and case audit meetings in accordance with College / Academy Guidelines..
- 13.4.5 The institutions must perform and provide evidence of regular audit of clinical activities in the subspecialty.
- 13.4.6 The trainees must have access to subspecialty journals and reference textbooks as defined by the Subspecialty Board.

### **13.5 Accreditation of the Subspecialty Programme Director**

The Subspecialty Programme Director should:

- 13.5.1 be a Fellow of the College in the subspecialty (either as a Fellow with accredited supervised subspecialty training or as a “First Fellow” who has fulfilled the Guidelines for Admission of First Fellows in a New Subspecialty of the Hong Kong Academy of Medicine)
- 13.5.2 have 10 years of experience of good practice excluding the training period in the subspecialty in an accredited institution
- 13.5.3 be actively involved in teaching as evidenced by teaching of postgraduates in the subspecialty
- 13.5.4 be actively participating in clinical audit and establishment of management guidelines
- 13.5.5 be active in research with track record in scientific publications
- 13.5.6 participate and fulfill the continuing medical education / continuing professional development requirement of the subspecialty
- 13.5.7 have local, regional or international standing in that subspecialty as evidenced by membership of learned societies, invitations for lectures and participation in regional and international meetings/ organizations
- 13.5.8 be in full-time employment in an accredited institution and spend more than 50% of his / her activity in the practice of the subspecialty
- 13.5.9 be required to provide a certificate of competency by the Subspecialty Board of the College if technically complex skills are required for the practice of the subspecialty
- 13.5.10 be re-accredited once every 3 years.s

### **13.6 Accreditation of Subspecialty Trainers**

The Subspecialty Trainer should:

- 13.6.1 be a Fellow of the Subspecialty of the Hong Kong College of Paediatricians (either as “First Fellow” or a Fellow with accredited training in the subspecialty)
- 13.6.2 have 5-year experience of good practice excluding the training period in the subspecialty in an accredited institution
- 13.6.3 be actively involved in teaching, research and clinical service of that subspecialty
- 13.6.4 be in full-time employment in an accredited institution and spend more than 50% of his / her activity in the practice of the subspecialty
- 13.6.5 participate and fulfill the continuing medical education / continuing professional development requirement of the subspecialty
- 13.6.6 should be re-accredited once every 3 years.

### **13.7 Accreditation of Training of Subspecialty Trainees**

- 13.7.1 All training must be approved by the Accreditation Committee, Programme Director in that subspecialty and the Subspecialty Board.
- 13.7.2 Possession of certificate of Intermediate Examination or equivalent and application for subspecialty training should normally be submitted at the end of the first year of Higher Training in General Paediatrics.
- 13.7.3 The trainee admitted into a subspecialty training programme must undergo full-time subspecialty training (more than 50% of the time must be spent in the activity related to the subspecialty) under the supervision of an accredited trainer in an accredited training institution.
- 13.7.4 The trainee is required to keep a personal log book of educational activities and exposure to cases during the period of training; the log book must be endorsed regularly by his / her supervisor every 6 months during the training programme.
- 13.7.5 Trainees must make at least 2 presentations in local or regional meetings.
- 13.7.6 Subspecialty trainees should submit 2 dissertations for assessment of which at least one is accepted for publication in an international journal or local journal upon completion of subspecialty training.
- 13.7.7 Trainees are encouraged to attend training courses in that subspecialty held locally or overseas.



### **13.8 Trainer : Trainee Ratio**

A trainer can supervise no more than two trainees either in the subspecialty training programme or in the Higher Training Programme in Paediatrics and no more than three trainees at any one time.

### **13.9 Accreditation of Subspecialty Training Programme undertaken by Trainees in Overseas Institutions**

13.9.1 The training programme overseas must fulfill all the criteria of a Subspecialty Training Programme as stated in Section 13.3 and 13.4.

13.9.2 The application for retrospective accreditation of overseas training in a paediatric subspecialty must fulfill all the guidelines laid down in Section 12.

13.9.2.1 The training programme should be continuous unless approved by the Subspecialty Board.

13.9.2.2 Trainees applying for recognition of interrupted training should fulfill the following criteria :

- i) the interruption should be less than one year
- ii) the trainee should show his / her intention for further training
- iii) there must be a justifiable reason for the interruption, either because of medical or other compassionate reason
- iv) members entering into Subspecialty Training on or after a certain date (to be defined) who has cumulative or continuous interruption of training in excess of 12 weeks excluding entitled leave must make declaration when he/she applies for Subspecialty Board Examination
- v) interruption of training more than 12 weeks during the 3-year Subspecialty Training Programme (trainees starting Subspecialty Training on or after a certain date (to be defined) must be made up with additional training.

13.9.3 Trainees who wish to undergo subspecialty training in overseas institutions should apply prospectively to the Subspecialty Board at least 3 months before the commencement of overseas training.

13.9.4 Trainees must supply the following documents and information to the Subspecialty Board for prospective approval 3 months before commencement of overseas training:

- i) Application letter for prospective approval
- ii) Period of overseas training and duration
- iii) Subspecialty, Institution/Training Centre, Country
- iv) Name of supervisor
- v) Institution information: background of the institution and institution accreditation status (whether it is a locally accredited training centre for the paediatric subspecialty )
- vi) Preliminary Training Programme (activities involved)
- vii) Undertaking by applicant on the status of the institution that it is a locally accredited training centre for the paediatric subspecialty
- viii) Acceptance letter from overseas training centre
- ix) Recommendation letter by local training supervisor/COS

13.9.5 Applications will not be processed unless all required documents are submitted with preliminary approval by the COS/training supervisor. All overseas subspecialty training applications will be acknowledged and outstanding information will be requested. The Subspecialty Board accepts that all the necessary information and documentation required may not be available before commencement of overseas training. If the trainee responds by giving a valid reason why such documentation is not available and undertake to provide the outstanding information and documentation within 3 months upon return from training overseas, this would be acceptable for the Committee. A preliminary approval will be issued by the Chairman of the Subspecialty Board after the application has been approved by the Subspecialty Board.

13.9.6 Unless a valid reason is provided for a trainee's inability to provide the necessary documentation prior to commencement of overseas training, submission of the necessary documentation upon completion of overseas training for accreditation will be treated as retrospective accreditation subjected to an administrative charge of HK\$2,000. This regulation will be strictly enforced within one year of setting up of the Subspecialty Board.

- 13.9.7 The trainee should submit the following information within 3 months upon return from training to the Subspecialty Board for final approval of his subspecialty training in the overseas institution:
- i) Application letter for final approval
  - ii) Training report by the applicant, including the finalized full training programme and duty roster
  - iii) Training summary and log sheet, duly signed by the overseas supervisor
  - iv) Summary of project and/or publication achieved during the training period
  - v) Declaration by trainee that the information submitted is true and accurate
  - vi) Local supervisor's evaluation together with recommendations towards accreditation

The Subspecialty Board reserves the right to write to the supervisor abroad directly for additional information.

- 13.9.8 If all the criteria as required by the Subspecialty Board are satisfied, a letter of accreditation will be issued to the trainee as official approval of his subspecialty training in the overseas institution.
- 13.9.9 The final decision is at the discretion of the College Council.

## HONG KONG ACADEMY OF MEDICINE

### Internationally Recognized Overseas Higher Qualifications

<b>COLLEGE</b>	<b>QUALIFICATION</b>	
<i>Paediatricians</i>		
1.	Diplomate of the American Board of Paediatrics	DAB Paed
2.	Fellow of the Royal Australasian College of Physicians	FRACP
3.	Fellow of the Royal College of Physicians (Canada)	FRCP(Canada)
4.	Fellow of the Royal College of Physicians (Edinburgh)	FRCP(Edin)
5.	Fellow of the Royal College of Physicians (Glasgow)	FRCP(Glas)
6.	Fellow of the Royal College of Physicians (Ireland)	FRCP(Ire)
7.	Fellow of the Royal College of Physicians (London)	FRCP(London)
8.	Member of the Royal College of Physicians (Edinburgh)	MRCP(Edin)
9.	Member of the Royal College of Physicians (Glasgow)	MRCP(Glasg)
10.	Member of the Royal College of Physicians (Ireland)	MRCP(Ire))
11.	Member of the Royal College of Physicians (London)	MRCP(London)
12.	Member of the Royal College of Physicians (UK)	MRCP(UK)
13.	Fellow of the Royal College of Paediatrics and Child Health	FRCPCH
14.	Member of the Royal College of Paediatrics and Child Health	MRCPCH

## **MRCPCH (INTERMEDIATE) EXAMINATION**

### **1. General Information**

The Hong Kong College of Paediatricians and the Royal College of Paediatrics and Child Health have been jointly organizing the MRCPCH (Intermediate) Examination. The Examination Committee oversees the organization of the MRCPCH (Intermediate) Examination in Hong Kong. The Examination consists of three parts: MRCPCH Part I Examination, MRCPCH Part II Examination and MRCPCH Clinical Examination. The MRCPCH Part I Examination and the MRCPCH Part II Examination will be held three times each year and the MRCPCH Clinical Examination will be held twice each year in Hong Kong.

### **2. Examiners**

Examiners/Invigilators are appointed by the Council upon the recommendation of the Examination Committee with approval by the Examination Committee of the Royal College of Paediatrics and Child Health.

All examinations shall have at least one Internal Examiner/Invigilator and at least one External Examiner/Invigilator.

### **3. MRCPCH Part I Examination**

Format: Two written papers (Paper IA and Paper IB)  
Entry requirement: Candidates must hold a recognized medical qualification in Hong Kong.

### **4. MRCPCH Part II Examination**

Format: Two written papers  
Entry requirement: Candidates must pass the MRCPCH Part I (before January 2004) or both the new MRCPCH Paper IA and Paper IB Examination within seven years of the date of the Part II Examination for which they are entering.

## **5. MRCPCH Clinical Examination**

Format: Assessment of 10 OSCE stations including 2 Communication stations, 1 Consultation and Management station, 1 Video Scenario station and 5 Clinical stations (Cardiovascular, Abdomen, Neurology, Respiratory and Others)

Entry requirements: Candidates must pass the Part II Examination and have completed a minimum period of training of two and a half years from the date of graduation given on their diploma of medical qualification. Within the five-year period before the date of the Clinical Examination, not less than 12 months should be spent in posts involving the care of paediatric emergencies.

## **6. Appeal**

Appeals by candidates in connection with examination matters shall be dealt with by the Review Committee.

## **ASSESSMENT OF HIGHER TRAINING**

### **1. General Information**

All trainees will undergo a formal Exit Assessment on completion of the 3-year higher training by a Board of Examiners appointed by the Council upon the recommendation of the Examination Committee.

### **2. Board of Examiners**

The Board of Examiners consists of at least two Fellows with or without external assessors or advisers.

### **3. Assessment Method**

The Board of Examiners will conduct an interview with the trainee.

The following materials must be submitted to the Board before the interview:

- a) Trainees' log sheets of higher training and assessment by Trainers and Supervisors
- b) Trainees' written documents of publications, reviews and/or reports

Details on the requirements of documents for assessment will be listed in the announcement for each assessment.

The following areas will be assessed.

- a) Dissertations
- b) Clinical Experience/Competence
- c) Service Related Issues
- d) Critical Appraisal of Scientific Publication

Detailed guidelines for assessment can be found in the College's website.

### **4. Appeal**

Appeals by candidates in connection with assessment matters shall be dealt with by the Review Committee.

## **ACKNOWLEDGEMENT**

The College would like to acknowledge the contributions of the following Members of the Education Committee, Members of the Accreditation Committee and Coordinators of the Paediatric Subspecialty Groups in revising the Guidelines on Postgraduate Training and Accreditation.

### **Members of the Education Committee**

Prof. Louis C. K. Low (Chairman)  
Dr. W. H. Lee (Honorary Secretary)  
Dr. C. F. Cheng  
Dr. P. T. Cheung  
Dr. Reann W. P. Chu  
Dr. Shirley S. L. Leung  
Prof. Tony Nelson  
Dr. N. S. Tsoi  
Dr. F. T. Yau  
Dr. Betty W. Y. Young

### **Members of the Accreditation Committee**

Dr. C. W. Chan (Chairman)  
Dr. Maurice P. Leung (Honorary Secretary)  
Dr. Alex K. H. Chan  
Dr. M. C. Chiu  
Prof. T. F. Fok  
Dr. Jackson C. S. Ho  
Prof. Y. L. Lau  
Dr. Paul C. W. Leung  
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Prof. P. C. Ng  
Dr. Y. C. Tsao  
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## **Members of the Task Force for Higher Training of Paediatric Subspecialties**

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## **Coordinators of the Paediatric Subspecialty Groups**

### ***Adolescent Medicine***

Dr. Winnie Tse

### ***Cardiology***

Dr. Maurice P. Leung, Prof. Rita Sung, Dr. Y. M. Ng, Dr. K. T. Chau

### ***Clinical Genetics***

Dr. Stephen T. S. Lam

### ***Endocrinology and Metabolism***

Dr. P. T. Cheung

### ***Gastroenterology and Hepatology***

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### ***Haematology and Oncology***

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***Intensive Care***

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***Neonatology***

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***Neurology & Developmental Paediatrics***

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