**PRM application to HKAM - Document 3**

**PRM Training Programme and Administration**

**Section 1:**
**Curriculum of Training in Paediatric Respiratory Medicine (PRM)**

**OBJECTIVES**
The objective of training is to produce a subspecialist in PRM who:

1. Can independently manage a variety of respiratory problems in children and adolescents
2. Has some basic experience and skills in research
3. Can supervise trainees and coordinate a PRM service, and
4. Has the ability and attitude for continued medical education and further professional development.

**KNOWLEDGE**

1. Knowledge should be built on the sound basis of training obtained from basic and higher training in General Paediatrics.
2. Should demonstrate an understanding of **respiratory symptoms and signs**, being able to organize investigations to aid diagnosis or to measure disease severity, and recommend and institute appropriate age-related treatments for common in- and out-patient respiratory conditions.
3. Know the indications, contraindications, risks and complications of **bronchoscopy** and its related procedures in children and be able to explain these to parents.
4. Understand the science of **aerosol delivery** and its limitations in children, and the differences between various aerosol treatments.
5. Should know the epidemiology, natural history and genetics of **allergy**, and choice and interpretation of allergy tests, with special reference to the respiratory tract.
6. Should understand the embryology and anatomy of **congenital malformations** of the airway, lung and chest wall, and how the congenital malformations affect lung function and be familiar with the principles underlying medical and surgical management.
7. Should understand the difficulties, variability, and range of presentation resulting in the diagnosis of **asthma** and know how and when to investigate for alternative diagnoses, understand the underlying abnormalities in lung function, recognizing asthma phenotypes, their different pathologies and long term outcome.
8. Should know the epidemiology of the **wheezing disorders of childhood**, the pharmacology of both common and unusual asthma medication, and the evidence basis for treatments at different age groups.
9. Should know the aetiology and pathogenesis of **chronic lung disease** (CLD), current strategies and therapies used in Neonatal intensive Care Units to try and prevent CLD occurring and the evidence base underpinning this, and treatment strategies for CLD.

10. Should demonstrate an understanding of the epidemiology, diagnosis, clinical presentation and treatment of common and rare **respiratory infections**. The trainee should be able to diagnose and manage common respiratory infections including: 1. upper and lower respiratory tract respiratory illness, croup, viral bronchiolitis, all forms of pneumonitis, lung abscess, empyema, bronchiectasis, and 2. the diagnosis and management of respiratory infections in high risk situations especially the child who is **immunosuppressed**.
11. Should know the epidemiology and clinical presentation for **childhood tuberculosis**, understand the development of tuberculin sensitivity and the limitations of current diagnostic methods.
12. Understand the developmental changes in respiratory physiology and pathophysiology of **acute and chronic respiratory failure** in children. Understand the methods used in the diagnosis and monitoring of ventilation in children and their limitations. Understand the principles and working of the commonly used ventilatory modalities including CPAP, BiPAP, and pressure and volume support. Understand the place of long term oxygen therapy in children with chronic respiratory failure.
13. Know the physiology of **sleep** at different ages, sleep stages, their effects on cardiorespiratory status and changes with age. Know what clinical conditions disturb sleep and in particular those which result in airway obstruction and central apnoea. Know the different clinical pictures caused by different conditions and be familiar with the advantages and limitations of polysomnography, cardiorespiratory studies and oximetry recordings.
14. Know the pathogenesis, diagnosis and management of **less common pulmonary diseases**: Obliterative bronchiolitis; Primary Ciliary Dyskinesia; Gastro-oesophageal Reflux related Lung Disease; Interstitial Lung Disease; Pulmonary vascular disorders including pulmonary hypertension; Pulmonary haemorrhage.
15. Know the impact of **environmental factors** from air pollution to smoking on the developing lungs and the family.
16. Should have acquired a basic knowledge of **research methods and statistics**, and has participated in a research team.

**SKILLS**

1. **Determine** the need for admission when assessing those referred, able to determine, plan and explain to families the appropriate investigations and treatment. **Recognise and manage** severe and/or deteriorating respiratory problems including the need for and implementation of invasive and non-invasive ventilatory support.
2. **Liaise with multidisciplinary team** caring for the patients, and give discharge advice to families with acute or chronic respiratory problems and arrange follow up as necessary, and serve as the pivotal liaison in long term management.
3. **Communicate** with the primary care team about the patient's future management, and be able to identify and manage unrelated conditions where appropriate.

4. Able to perform **lung function tests** and teach the underlying physiology - flow-volume curves, measurement of lung volumes, the principles of bronchial lability, ventilation, perfusion and gas exchange. Able to perform spirometric testing, measurement of bronchodilator responsiveness, measurement of lung volumes, bronchial responsiveness, exercise challenge and assessing fitness to fly.
5. Know the delivery of **aerosol therapy** to children of different ages, and instruction of children, parents, nurses and doctors in the use of inhalers and devices.
6. Have undertaken **skin prick testing**, management of allergic rhinitis and eczema and can appropriately discuss the role of immunotherapy with families.
7. Should be familiar with the diagnosis of all the major **congenital upper and lower respiratory tract abnormalities**, be able to select appropriate diagnostic techniques in elucidation and have had practical experience in the initial assessment and follow up of the major congenital abnormalities to the satisfaction of his/her supervisor
8. Management of infants and older children with **acute wheezing disorders**, including bronchiolitis and acute severe asthma, management of chronic infant wheezing/asthma in a clinic setting and evaluate difficult asthma, arrange investigations and understand potential further treatments.
9. Should have managed the **respiratory and nutritional care of babies with CLD.** This should include managing the discharge and home care planning process and follow-up.
10. Should be able to perform a **naso-pharyngeal aspirate** and washings, take a cough swab, perform a diagnostic pleural tap and insert a chest drain and bronchoscopic bronchoalveolar lavage
11. To perform and interpret **tuberculin skin testing**.
12. Practical experience of the diagnosis, assessment and management of children with **chronic respiratory failure** including specifically children with neuromuscular disorders, ventilatory control disorders, severe chronic lung disease, severe obstructive sleep apnoea and/or craniofacial anomalies unresponsive to adenotonsillectomy. Practical experience of long-term ventilatory support in children including the choice and set up of equipment, discharge planning, and follow-up and troubleshooting.
13. Practical experience in the prescription, initiation, and supervision of children who require **home oxygen therapy**.
14. Principles and practice of **tracheostomy** care in children.
15. Able to take a sleep history, set up a **sleep study**, score respiratory events, report sleep studies and assess clinical status for intervention.
16. Ability to recognize presentations of **rare lung diseases** with appropriate degree of suspicion, to perform and interpret an oesophageal pH study, to perform a nasal ciliary biopsy and to assess the indications for lung biopsy and interpret the report.
17. Able to use and interpret **imaging of the respiratory tract** from Xrays, ultrasound, CT scans, MRI and radio-isotope scans of the respiratory tract for diagnosis and assessment of disease and function in children.

18. Should be able to perform **flexible bronchoscopy** for the diagnosis, assessment and treatment of airway diseases in children.
19. Should be able to give proper counseling to parents and children on **smoking and environmental factors** affecting pulmonary health in children and the family.
20. Should have mastered **basic research skills** of hypothesis formation, study design, trial conduct and result analysis.

**ATTITUDES**

1. Appreciation of the **scope and limitations** of clinical, laboratory and radiological investigations for respiratory diseases.
2. Appreciation of the **need to participate** in formulation of guidelines and protocols for respiratory diseases to maintain the standard of care.
3. Appreciation of the importance of appropriate, effective and timely **communication** with children, parents, colleagues and other allied health professionals.
4. Appreciation of the importance of **team work**, and **willingness to teach** and train junior staff.
5. Appreciation of the need to **maintain one's knowledge** of recent advances and current concepts of the subspecialty over a professional lifetime.

**DOCUMENTATION**

At the end of the training, the trainee should:

1. Have a portfolio of a minimum of **50 cases of in-patient management** of respiratory diseases during the training period.
2. Have a portfolio of a minimum of **50 cases of out-patient management** of respiratory diseases during the training period.
3. Performed **specialist procedures** as required in Appendix III.
4. Have been involved in **clinical audit** in the discipline.

**Section 2:**
**Guideline on Training: Duration and Content**

1. The training should span a minimum of 3 years, of which a maximum of 12 months may overlap with the higher training in General Paediatrics if this period was done in paediatric respiratory medicine.

2. A minimum of 30 months should be spent in clinical training in at least 2 hospitals. A minimum of 6 months should be spent in any 1 of the hospitals.

3. It is recommended that at least 3 months of clinical training should be spent in the paediatric intensive care unit (PICU). Total time spent in the PICU or Neonatal Intensive Care Unit (NICU) should not exceed 9 months, with not more than 3 months spent in NICU. The work in the PICU and NICU should be significantly more advanced than that done during general paediatric training. The trainee should be given a more supervisory role.

4. Overseas training in an accredited paediatric respiratory unit is strongly recommended for a minimum period of 6 months. It is possible for a significantly larger proportion of the training to be done overseas.

5. A minimum of 3 months of protected time (or equivalent) for research is highly recommended.

6. Elective training may be done for a maximum of 6 months in one or two of the following disciplines, subject to the approval of the Subspecialty Board:

    a. Paediatric anaesthesia
    b. Adult respiratory medicine
    c. Paediatric imaging
    d. Laboratory research, related to PRM
    e. Paediatric otorhinolaryngology
    f. Clinical allergy
    g. Epidemiology
    h. Other related or new disciplines as approved by the Subspecialty Board

7. At least 6 teaching sessions to post-graduates of at least 1 hour each should be carried out during the training period, preferably under supervision.

8. At least 2 dissertations should be written and submitted as part of the exit assessment. At least 1 of these dissertations should lead to publication of a scientific paper in a peer-reviewed journal. At least one of the dissertations should be a scholarly study or original research.

9. At least 2 papers should be accepted for presentation in local or international meetings. One or more of them should have been an oral presentation.

10. Administrative responsibilities should be part of the training, as assigned by the trainer.

**Section 3:**
**Specialist Procedures Required for PRM Subspecialists**

The trainee is expected to achieve competence in the following specialist procedures by the end of training, to be able to function independently in patient management.

**Mandatory**

1. Tuberculin test (Mantoux)
2. Skin prick tests of common allergens
3. Tracheal intubation (minimum of 10 performed)
4. Changing a tracheostomy tube (minimum of 3 performed)
5. Diagnostic pleural tapping (minimum of 5 performed)
6. Chest drain insertion
7. Full Lung Function Testing including spirometry, lung volumes, body plethysmography, and DLCO for children of different ages (minimum of 5 hands on tests and 30 interpretation)
8. Performance and interpretation of a polysomnogram (Sleep study) (minimum of 5 under close supervision and 30 more interpretation)
9. Flexible bronchoscopy (minimum of 15 performed and assisted in 30)
10. Use of non-invasive ventilator support

**Desirable**

1. Procedures during bronchoscopy: BAL, brush biopsy, endo-bronchial biopsy, bronchoscopic intubation
2. Perform and interpret exhaled nitric oxide
3. Infant and pre-school lung function tests
4. pH study for suspected GERD
5. Exercise challenge testing
6. Bronchial challenge testing
7. Respiratory muscle and airway resistance assessment

**Section 4:**
**Guideline on Exit Assessment**

1. The trainee should have completed the required training in duration and content as set up in Document 2b

2. The trainee should submit the log book kept for the documentation of
    a. portfolios of in-patient and out-patient management of cases as required in Document 2a
    b. portfolio of specialist procedures done as required in Document 3

3. The trainee should submit all dissertations, presentations, research, and publications as required in Document 2b for the Examiners' scrutiny.

4. The trainee should submit a testimonial from his trainers, outlining his training, his knowledge, skills and attitudes, and his character, and research and administrative responsibilities taken up during training.

5. An oral examination will be held by at least 2 Examiners appointed by the Subspecialty Board. During the examination, the trainee is expected to defend his dissertations, and be asked any questions related to PRM and his PRM training. The trainee has to satisfy the Examiners that he has attained the objectives of training as set out in the curriculum.

**Section 5:**
**Guideline Document on Programme Organization and Training Centres**
**(revised in June 2024)**

1. There will be ONE training programme for the whole of Hong Kong, with a number of accredited training centres.

2. The training programme will take place in training centres under the supervision of accredited trainers and supervisors, aimed at taking the trainee through all the required curriculum of training in knowledge, practice and skills.

3. A training centre should be a hospital unit with at least ONE trainer, and providing services and training in PRM. If a hospital is only capable of providing some but not all of the aspects of training, that hospital may only be accredited for training for a proportion of the full training programme.

4. Hospitals which can provide the following services be accredited for 12-24 months of PRM training: (see table 1)
    a. Basic requirements
        i. Trainer:
            - 12-months's accredited centres: One
            - 18-24 months' accredited centres: at least 2
        ii. In-patient case load: 75-100 complex or highly complex episodes per year
        iii. Respiratory related clinics : at least 2 sessions weekly
        iv. Spirometry: at least 50 per year
    b. Special requirements
        i. Static lung volume/DLCO/Bronchopovocation tests: available
        ii. Flexible bronchoscopy: 20 per year
        iii. Polysomnography: 50 per year
        iv. Pulmonary rehabilitation service: available
        v. PICU: mandatory
        vi. NICU: preferable
        vii. Centres may be considered for accreditation of less than 24 months' training if there are 3 out of items i to iv available, or if numbers do not match up to required, by the discretion of the College together with the Subspecialty Board.
    c. Additional requirements for the 12-months' accredited centres
        i. Those 12- months' accredited centres are required to form clustering with other accredited centre(s) for the cross-covering of trainers.

5. Hospitals which can provide the following services should be accredited for 30 months of PRM training: (see table 1)
    a. Basic requirements
        i. Trainer: 3 or more
        ii. In-patient case load: 120 complex or highly complex episodes per year (see Table 2 for definition of case complexity)
        iii. Respiratory/sleep/asthma clinics at least 2 sessions weekly
        iv. Spirometry: at least 100 per year
    b. Special requirements
        i. Static lung volume/DLCO/Bronchoprovocation tests: at least 24 per year
        ii. Flexible bronchoscopy: at least 30 per year
        iii. Polysomnography: at least 100 per year
        iv. Pulmonary rehabilitation service: available
        v. PICU: mandatory
        vi. NICU: mandatory
    c. Advanced requirements: any 3 of the following:
        i. ENT surgery
        ii. Surgical services related to the respiratory tract: maxillofacial/plastic/cardiac/thoracic/spine/paediatric surgery
        iii. Multidisciplinary aero-digestive tract assessment and management programme
        iv. Specialized lung function service: e.g. infant lung function
        v. ECMO
        vi. Organ transplant service

6. The accreditation of training centres, the curriculum, and requirements of training will be reviewed by the Subspecialty Board at regular intervals

7. Each hospital unit should stipulate the training capacity (the number of trainees it can accommodate) according to the number of trainers available, the clinical case load, and the number of subspecialty procedures the unit provides, at the beginning of the programme.

8. Trainees who have obtained training in hospitals accredited for 12-24 months of training must have their remaining training for a total of at least 6 months in a hospital accredited for 30 months of training or an accredited overseas centre. Those who have been trained in hospitals accredited for 30 months of training may have part of their training (up to 6 months) in a hospital accredited for 18-24 months' training.

9. Training in more than 2 and up to 4 hospital units will be strongly encouraged.

10. The road map of training of each trainee should be clearly stipulated before

the training begins, ensuring adequate clinical exposure and proper training.

11. Overseas training in an accredited paediatric respiratory unit is strongly recommended for a minimum period of 6 months. Preferably this will be done to overcome any potential deficiencies in local training according to the curriculum, or for the development of new skills. It is possible for a significant larger proportion of the training to be done overseas. (Also refer to Section 2: Point 4).

12. The whole training programme will be headed up by a Programme Director who oversees the consistency and uniformity of training in the various clusters. He should have at least 10 years of subspecialty experience and is working full time in the subspecialty.

13. A trainer must have obtained FHKAM (Paediatrics) and a Fellow of the PRM subspecialty. He should be in full-time employment in an accredited institution and spending more than 50% of his/her activity in the practice of the subspecialty.

## Table 1. Mandatory requirements for accreditation of training

| Clinical Materials | Criteria | 12 months accredited | 18-24 months accredited | | 30 months accredited |
|---|---|---|---|---|---|
| Basic | Trainer | 1 | ≥ 2 | | ≥ 3 |
| | Inpatient case load (complex/highly complex) | 75-100 per year | | | 120 per year |
| | Respiratory related clinic (i.e. asthma/ sleep) | 2 sessions per week | | | 2 sessions per week |
| | Spirometry | 50 per year | | | 100 per year |
| Special | Static lung volume / DLCO/ Bronchoprovocation tests | Less than 24 months accreditation may be granted in hospital with at least 3 out of 4 of the services (and/or adequate caseload), as judged by the College | | Available | 24 per year |
| | Flexible Bronchoscopy | | | 20 per year | 30 per year |
| | Polysomnography | | | 50 per year | 100 per year |
| | Pulmonary rehabilitation | | | Available | Available |
| | PICU | Mandatory | | Mandatory | Mandatory |
| | NICU | N/A for <24 months accreditation | | Preferable | Mandatory |
| Advanced | Respiratory medicine related services | N/A | N/A | | At least 3 out of 6 |
| | 1. ENT surgery | | | | |
| | 2. Surgical services related to respiratory tract (Maxillofacial/Plastic/Car diac / Thoracic/Spine/Paediatric) | | | | |
| | 3. Multidisciplinary aerodigestive tract assessment and management program | | | | |
| | 4. Special lung function test (infant) | | | | |
| | 5. ECMO | | | | |
| | 6. Organ transplant | | | | |

N/A : Not available

**Table 2: Case Profile Definition: when case satisfies any one or more columns of the 2 sets of factors (Disease or Treatment)**

| Categorization of case complexity* | Disease factors | | Treatment factors | |
|---|---|---|---|---|
| | **Disease Severity (A)** | **Disease Complications (B)** | **Level of Care / Isolation (C)** | **Procedures (D)** |
| **Simple** | mild | nil | clinic / ambulatory / general ward care, isolation: nil / contact / droplets | nil |
| **Intermediate** | moderate | mild (e.g. self-limiting, complete recovery) | general ward care, isolation: nil / contact / droplets / airborne / reverse | simple / non-invasive procedures (e.g. oxygen therapy, intravenous fluid) |
| **Complex** | severe | moderate (e.g. intervention required, short term morbidity but complete recovery anticipated) | HDU / SCBU / ICU / PICU / NICU care requiring intensive monitoring, with or without isolation | specialized / invasive procedures (e.g. chest drain, thoracocentesis, pleural biospy, bronchoscopy) |
| **Highly complex** | life-threatening | severe (e.g. intervention required, only partial recovery or presence of long-term morbidity) | ICU / PICU / NICU requiring ventilatory support, multi-specialty care, or surgical management, with or without isolation | highly specialized procedures (e.g. intubation, ventilation, surgery, plasmapheresis, interventional radiology, ECMO, lung transplant) |

**Section 6:**
**Subspecialty Board: Function and Composition**

The Subspecialty Board of PRM should have the following **functions**:

1. To uphold, develop and improve the standard of practice and research of PRM in Hong Kong
2. To promote and advise on the total manpower and its distribution and training for need of the population in Hong Kong with reference to its position in China, and to plan for the necessity of training in Hong Kong.
3. To formulate, regulate and oversee the development and maintanence of the training programme and guidelines for PRM
4. To accredit, regulate and monitor training centres under the programme
5. To appoint, regulate and monitor trainers of the programme
6. To conduct exit examinations in PRM for the admission of Sub-specialty Fellows, and to recommend them to the College and hence the HKAM for admission as sub-specialty fellows
7. To recommend and regulate CME and CPD requirements in PRM for Sub-specialty Fellows
8. To recommend improvements and developments to the College for PRM.

The composition of the Subspecialty Board should include 5 Fellows of the College:

1. Five Fellows in that subspecialty should be elected from the University, Public institutions (Hospital Authority, Department of Health) and private sector.
2. The Chairman of the Subspecialty Board will be elected by the Subspecialty Board members and appointed by Council.
3. No more than 2 co-opted members may be appointed for specific purposes, with endorsement from the Committee for Subspecialty Boards and the Council. The term of service would be one year and eligible for re-appointment.

**Section 7:**
**CME/CPD for Fellows in PRM**

1. Fellows in PRM will be expected to have CME/CPD similar to that done by Fellows in General Paediatrics. This will be changed from time to time according to College and HKAM requirements.
2. The CME/CPD cycle is also 3 years, during which the Fellow in PRM will have to complete at least 90 CME/CPD points, at least 50% of which should be done in PRM.
3. Accreditation of CME/CPD activities, local or overseas, will be done in the same way as that for other paediatric disciplines. The Sub-specialty board will co-ordinate with the training centres, HKSPR and other related groups to ensure an adequate number of such activities.