

# Continuing Professional Development

## Paediatric Respiratory Diseases

*This syllabus is for specialists in paediatric respiratory medicine:*

*The target patient population referred to in this syllabus comprises infants, children and young adults below the age of 18 years*

### **Module 1. Structure and function of the respiratory system**

1. Anatomy and development
2. Applied respiratory physiology and pathophysiology (including common respiratory symptoms)
3. Immunology and defence mechanisms
4. Environmental determinants of respiratory health and disease in childhood

### **Module 2. Respiratory symptoms and signs**

#### **Evaluation and management of:**

1. Acute and chronic cough
2. Stridor, wheezing and other respiratory noises
3. Dyspnoea and breathlessness
4. Respiratory distress and respiratory insufficiency
5. Questionnaires in clinical assessment

### **Module 3. Pulmonary function and diagnostic testing**

#### **Measurement, performance and interpretation of:**

1. Volume-time and flow-volume curve
2. Static lung volumes
3. Respiratory mechanics
4. Reversibility testing
5. Bronchial provocation testing
6. Cardiopulmonary exercise testing (CPET)
7. Blood gas analysis and pulse oximetry
8. Lung diffusion
9. Ventilation inhomogeneity
10. Respiratory muscle function
11. Hygiene and infection control during test procedures
12. Definitions of measured indices
13. Choice and appropriate use of reference values
14. Test variability and reproducibility
15. Quality control in paediatric lung function laboratories
16. Health and safety issues in paediatric lung function laboratories
17. Lung function measurement in non-co-operative children

#### **Additional diagnostic tests:**

18. Understands how measurements of exhaled nitric oxide contribute to diagnosis and management
19. Induced sputum testing
20. Assessment of the respiratory risk of air travel, high altitude and diving

**Module 4. Airway endoscopy**

1. Organisation of an endoscopy suite including equipment maintenance and hygiene
2. Indications for, contraindications, performance and interpretation of flexible bronchoscopy and associated procedures
3. Sedation and anaesthesia for paediatric flexible bronchoscopy
4. Indications for and contraindications of interventional bronchoscopy techniques other than foreign body removal
5. Indications for and contraindications of rigid bronchoscopy
6. Evaluation and management of risks and complications of airway endoscopy

**Module 5. Imaging**

1. Principles of conventional radiography, computed tomography, magnetic resonance imaging, isotope imaging methods and ultrasonography
2. Comparative radiation burden of commonly used imaging methods in children, and the ability to balance the risks and benefits
3. Indications for interventional radiology

**Module 6. Respiratory infections**

1. Epidemiology, diagnosis, management and complications of:
2. Acute upper respiratory tract infections (including COVID-19)
3. Acute lower respiratory tract infections
4. Pleural infections
5. TB and non-TB mycobacterial diseases
6. Diagnosis and management of respiratory infections in high-risk situations
7. Diagnosis and management of protracted bacterial bronchitis and non-cystic fibrosis (CF) bronchiectasis
8. Lung involvement in an immunocompromised host
9. Microbiology and infectivity
10. Pharmacology of antimicrobial and antiviral drugs
11. Immunisations for respiratory pathogens
12. Accuracy and interpretation of microbiological tests

**Module 7. Asthma and wheezing disorders**

1. Phenotypes and their different pathologies and long-term outcomes (including underlying pathophysiology and basic epidemiology)
2. Environmental factors relevant to asthma and other wheezing disorders
3. Difficulties in diagnosis and differential diagnosis
4. Management of asthma and wheezing at different ages, including age-related pharmacology, and pharmacological and non-pharmacological management
5. Management of difficult and severe asthma

**Module 8. Allergic disorders:****Epidemiology, diagnosis and management of:**

1. Anaphylaxis
2. Allergic rhinitis
3. Bronchopulmonary aspergillosis
4. In vivo and in vitro testing for allergic disorders
5. Prevention measures
6. Diagnosis and basic management of associated allergic conditions

**Module 9. CF**

1. Epidemiology, genetics, pathophysiology and prognosis
2. Screening and diagnosis
3. Epidemiology, diagnosis, management and complications of:
4. CF lung diseases

5. Extrapulmonary manifestations of CF including nutrition
6. Microbiology relevant to CF, including cross-infection

**Module 10. Congenital malformations**

1. Epidemiology, diagnosis and management of common congenital malformations affecting the respiratory system
2. Antenatal diagnosis and management
3. Follow-up and long-term outcomes

**Module 11. Bronchopulmonary dysplasia (BPD)/chronic neonatal lung disease**

1. Epidemiology, aetiology, prevention, diagnosis, management and complications of BP
2. Follow-up and long-term outcomes

**Module 12. Ear-nose-throat and aerodigestive-related respiratory problems: diagnosis and management:**

1. Aspiration due to feeding and swallowing disorders
2. Gastro-oesophageal reflux
3. Laryngeal and tracheal disorders
4. Foreign body inhalation

**Module 13. Respiratory complications of systemic/extrapulmonary conditions**

1. Primary immunodeficiency syndromes
2. Secondary immunodeficiency syndromes/immunosuppression
3. Cardiac disease
4. Gastrointestinal, liver and kidney disease
5. Haematological disease
6. Obesity
7. Connective tissue disease
8. Musculo-skeletal and neuromuscular disease

**Module 14. Rare diseases; pathophysiology, genetics, aetiology and management of:**

1. Primary ciliary dyskinesia
2. Bronchiolitis obliterans
3. Interstitial lung diseases
4. Pulmonary vascular disorders including pulmonary arterial hypertension
5. Pulmonary haemorrhage
6. Pleural diseases including spontaneous pneumothorax
7. Drug- and radiation-induced lung diseases
8. Other rare lung diseases

**Module 15. Respiratory sleep medicine and breathing control disorders**

1. Physiology and pathophysiology of sleep relevant to paediatric respiratory medicine
  2. Indications for, and interpretation of the results of polysomnography
- Epidemiology, aetiology, diagnosis of, screening for, and complications of:**
3. Obstructive sleep apnoea syndromes
  4. Central sleep apnoea/hypoventilation
  5. Dysfunctional breathing/hyperventilation syndromes

**Module 16. Long-term management in chronic respiratory disorders**

1. The multidisciplinary team
2. Health education (\*preventive medicine)
3. Patient education and self-management
4. Nutritional management
5. Psychological support for children and families
6. Principles of physiotherapy techniques, indications and limitations
7. Sport and exercise therapy
8. Management of end-stage lung disease, including palliative care

9. Indications for lung transplantation and non-surgical care of the lung transplant patient
10. Assessment of Quality of Life

**Module 17. Inhalation therapy**

1. Basic science of aerosol production and delivery including principles and objectives
2. Indications for inhalation therapy
3. Available techniques and their advantages and limitations
4. Delivery of drugs to children with artificial airways

**Module 18. Technology-dependent children**

**Management, monitoring and weaning of:**

1. Home oxygen therapy
2. Invasive and non-invasive home ventilatory support
3. Tracheostomy
4. Basic technical understanding of equipment
5. Airway clearance techniques
6. Recognition of associated problems (including neurodevelopmental assessment)

**Module 19. Epidemiology and environmental health**

1. Basic understanding of epidemiological principles
2. Impact of indoor and outdoor air pollution on respiratory health
3. Smoking impact, prevention and cessation
4. Burden of paediatric respiratory diseases on healthcare resources

**Module 20. Evidence-based medicine and research**

1. Scientific literature appraisal
2. Understanding and application of the ethical principles of paediatric research
3. Bioinformatics and interpretation of big data