NATIONAL POSTGRADUATE MEDICAL COLLEGE OF NIGERIA

CURRICULUM FOR SUBSPECIALTY IN PAEDIATRIC RESPIRATORY

FACULTY OF PAEDIATRICS

APPROVED BY THE SENATE ON 23RD JULY, 2020

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NATIONAL POSTGRADUATE MEDICAL COLLEGE OF NIGERIA
FACULTY OF PAEDIATRICS
PROGRAMME FOR SPECIALIST TRAINING IN PAEDIATRIC RESPIRATORY MEDICINE

1.0. INTRODUCTION

Paediatric Respiratory Medicine (PRM) is the subspecialty in paediatric practice that deals with evaluation and treatment of diseases affecting the lungs and pulmonary sequalae arising from other systemic diseases. The discipline is a relevant step in ensuring the best quality of care for all children with respiratory problems. The programme is aimed at preparing Resident doctors and Consultants who wish to acquire relevant training in PRM. It is envisaged that these will appropriately handle the increasing burden of paediatric respiratory diseases (PRD), which constitutes nearly half of all disease conditions affecting children of all age groups.

While primary health care has largely led to reduction in PRD case load in Nigeria, hospital records reveal high incidence of severe respiratory disease as the leading cause of morbidity and mortality in children. PRM therefore guarantees that children receive the best quality of care in the health sector.

The National Postgraduate Medical College superintends the training of Generalist in various disciplines of Medicine. Recently, the College operates subspecialty training in Respiratory Medicine for Faculty of Internal Medicine which trains medical personnel as resources in this area. This is the cardinal purpose of the PRM programme. Furthermore the beneficiary will provide best quality of care to children, provide appropriate teaching to lower cadre of medical personnel, play administrative roles in National Health Schemes, influence health care policy and have the capacity to conduct research in PRM.

2.0. OBJECTIVES OF PRM

1. Harmonize the education and training of paediatric respiratory medicine specialists in Nigeria.
2. To inculcate knowledge and skills to trainee who will ultimately teach those at lower levels.
3. To change attitude and behaviours of medical personnel as regards to PRM.
4. To develop the ability to use, manage, and maintain essential apparatus in practice of PRM.
5. To impress learnt communication skills to patient and his family; colleagues, nurses, and other paramedical personnel.
6. To enable trainees achieve highest possible standard of PRM practice.
7. Create awareness inter-relationship between pulmonary diseases and other subspecialty areas.
8. Set minimum standard for training institutions for accreditation and evaluation of the programme by the College.

3.0. TRAINING IN PRM

The training programme should be primarily in an accredited tertiary health institution.

3.1. ADMISSION REQUIREMENT:

- A pass at the Part I Fellowship Examination of the National Postgraduate Medical College of Nigeria (Faculty of Paediatrics) or its equivalent.
- Membership from recognized Colleges (National and International) that are equivalent to the Part I of the National Postgraduate Medical College of Nigeria (NPMCN).
- Fellows in General Paediatrics who wish to acquire subspecialty training in PRM.
- Mature medical personnel who MUST fulfil the following criteria:

- ➢ Age: 35 years and above
- ➢ Must have attained the Senior Registrar level at one time or the other.
- ➢ Duration of exit from residency program should be minimum of 5 years and maximum of 10 years.

3.2. MODE OF ENTRY INTO PROGRAMME

- • Progression from general paediatrics training to PRM
- • Others shall be by application to training institution and National Postgraduate Medical College of Nigeria (NPMCN) through the Faculty (Paediatrics).

3.3. DURATION OF TRAINING:

3.3.1. REGULAR RESIDENTS: The duration of training should be Twenty-Four (24) months divided into the following:

a. **Paediatric Respiratory Unit (PRU) for 12 months.**

- • The first 6 months of the PRM training should start from the PRU. During this period, the candidate is expected to have basic knowledge sufficient to recognize and to know when to refer patient under close supervision by a Consultant Paediatric Respiratory Physician.
- • The last 6 months of the 24 months in PRM training must be spent in PRU. During this period, the candidate would have had in-depth knowledge/advanced knowledge sufficient for independent tertiary specialist practice
- • Candidates should be able to acquire the skills for patients and apparatus handling in the respiratory laboratory.

b. **Elective in subspecialty for 12 months**. During this elective but compulsory posting, the candidate should have acquired intermediate knowledge sufficient to manage paediatric respiratory diseases under supervision by a consultant or at least have basic knowledge sufficient to recognize and know vital information for disease diagnosis and referral.

The elective is as follows:

No	Elective posting	Duration
1.	Neonatology -new born respiratory disorders and congenital pulmonary diseases	2 months
2.	Critical care medicine-intensive care unit, anaesthesiology and cardiology	2 months
3.	Cardiothoracic surgery	1 month
4.	Ear, Nose and Throat Surgery	1 month
5.	Radiology	1 month
6.	Pathology: Morbid anatomy including autopsy demonstrations and Microbiological procedures/tests Physiotherapy	2 months
7.	Education (Communication skills)	2 months
8.		1 month

3.3.2. FELLOWS AND MATURE MEDICAL PERSONNEL: The duration of the PRM program shall be 12 months. The first and the last 3 months should be in PRU. And then 6 months of elective but compulsory postings in Intensive Care Unit, Radiology and Pathology (2 months each).

3.3.3. At the ending of the posting, candidates should have evidence of the following:

1. Expert and focused evaluation of the respiratory system. This will enable the candidate make diagnosis of respiratory problems bearing in mind the anatomical and physiological components of respiratory diseases.
2. To act sensitively and to practice high ethical standards in handling of difficult patients' problems, for example in respiratory intensive care unit (ICU) and

management of terminal respiratory illnesses.

3. To communicate effectively with, and educate patients and colleagues
4. To provide a high quality of medical care, including the selection and performance of appropriate test and investigations

4.0. METHOD OF TRAINING

This should include:

- Apprenticeship with the Paediatric Consultant Pulmonologist.
- Clinics and ward rounds/works
- Teaching junior residents and medical students
- Personal studies by use of internet services and text books
- Workshops and conferences such as Nigerian Thoracic Society Scientific Conferences.
- National Postgraduate Medical College Intensive courses, Research Methodology, Human Resources Management, Workshops on Ethics, etc
- Seminars and Clinical meetings, journal review meetings
- Pulmonary /lung function laboratory practices and clinical procedures such as exercise testing, bronchial challenge tests, fibroptic bronchoscopy, fluoroscopy, chest tube insertion, blood gas analysis, vitallography, spirometry, etc
- Assignments on relevant PRM topics

5.0. PRM EXAMINATION FORMATT:

a. Eligibility:

(i). Each candidate must attain at least 75% of the following:

- Attendance at seminars, workshops, conferences, teaching rounds in relevant areas or fields
- Competence and use of respiratory apparatus as outlined in the NPMCN log book and as in the PRM programme
- Rotation at elective posting

(ii). Candidates must have average of 50% or credit in assignments

b. Examination mode:

This will consists of multiple choice questions (MCQ), practicals, viva voce and dissertation.

- Paper I : Core knowledge consisting of MCQ in 50% General Paediatrics and 50% in PRM. Duration shall be one hour.
- Practicals in PRM consisting of pictorial cases, instrumentation, and laboratory results
- Management/leadership skills: Viva voce (General Paediatrics and PRM)
- A dissertation in relevant PRM subject area

Note: **For a candidate to be judged successful in the examination, the candidate must have 50% pass in each category (MCQ, Practicals and viva voce) according to the College/Faculty regulation and a pass on the dissertation.**

6.0. CLASSIFICATION OF RESULT

The candidate's result is classified as pass (P), provisional pass (PP), and fail (F).

- A pass is obtained when the candidate has a pass in all the categories of the examination including the dissertation..
- A provisional pass is when the candidate has passed all categories of the examination but has a provisional pass in dissertation.
- Fail is a fail in any of the categories of the examination and /or referred in dissertation.
- Other conditions on declaration of result as stipulated by the College.

7.0. DESIGNATION OF FELLOWSHIP

Designation should be Fellow of the Medical College in Paediatrics (Paediatric Respiratory Medicine)- **FMCPaed (PRM)**

8.0. HEALTH INSTITUTIONS' ELIGIBILITY CRITERIA

A. Criteria according to the National Postgraduate Medical College of Nigeria (Faculty of Paediatrics)

B. Evidence of a functional respiratory laboratory or pulmonary function laboratory with essential equipments such as materials for performing reversibility tests, exercise tests, ventilation-perfusion tests, vitallography, spirometry (FVC/FEV_1), FEF_{25-75}, flow volume curves, etc

C. Equipments for patients' care such as pulse oximeter, oxygen delivery systems, humidifiers, apnoea monitors, oxygen concentrators, ECG machines, blood gas analyzer, etc.

D. At least one trained Paediatric Respiratory Physician Consultant

E. Other Departments

- Radiology department: Evidence of relevant radiological investigations e.g plain radiographs, fluoroscopy, USS and CT scans, etc
- Cardiothoracic surgery: Ability to perform lung biopsy, fibroptic bronchoscopy.
- Microbiology: Cultures of organisms such as MDR TB; serological tests for virology and mycology, etc

9.0. THE PRM CURRICULUM AND SYLLABUS

The syllabus defines the knowledge and skills that a PRM trainee needs to acquire before appointment or practice as a specialist in PRM. The syllabus is aimed at harmonizing all training programs in PRM between different training institutions.

The syllabus is however hinged on the European Model.

THE SYLLABUS

1. Evaluation of respiratory symptoms and signs.

a. Anatomy and physiology of common symptoms e.g cough, shortness of breath.

b. Evaluation and management of nosy breathing

c. Understanding of validity of symptoms and signs

d. Clinical use of questionnaires.

2. Congenital malformations (CM)

a. Development anatomy relevant to respiratory system

b. Respiratory mechanics in malformations relevant to respiratory function.

c. Diagnosis and management of CM affecting the RS

d. Knowledge of surgical options for treating CM

e. Follow up and outcomes of CM

3. Airway Endoscopy

a. Anatomy, physiology and pathology of the respiratory of children

b. Conscious sedation and local anaesthesia for Paediatric patients

c. Indications and contraindication for endoscopy procedures e.g bronchoalveolar lavage, bronchial brushings and biopsies, etc

d. Evaluation and management of risks and complications.

e. Organization of an endoscopic suite including equipment maintenance and hygiene.

4. Imaging

a. Anatomy of the respiratory tract including the extra thoracic airway as visualized using imaging techniques.

b. Indication, interpretation and basic principles of conventional radiography, computed tomography, magnetic resonance imaging, ultrasonography and isotope imaging methods.

c. Comparative radiation burden of the different procedures

d. Indications for interventional radiology (drainages, foreign body removal, biopsies).

5. Pulmonary function testing

a. Anatomical and developmental respiratory physiology in health and disease including ventilation-perfusion and gas exchange.

b. Definitions and measurement and interpretation of flow-volume curves

c. Definitions measurement and interpretation of lung volumes including PEFR

d. Appropriate use of reference values

e. Test variability and reproducibility

f. Performance and interpretation of various testing (reversibility, bronchial provocation, exercise)

g. Blood gas assessment and oximetry interpretation

h. Organization and quality control in paediatric lung function laboratories.

6. Acute and chronic lung infection

a. Epidemiology, microbiology, infectivity of agents and pharmacology of antimicrobial and antiviral drugs.

b. Diagnosis and management of common respiratory tract infections and their complications.

c. Diagnosis and management of respiratory infections in high-risk situations.

d. Diagnosis and management of chronic supprative lung diseases

e. Immunizations, general and for respiratory pathogens

f. Accuracy and interpretation of microbiological tests

g. Lung involvement in immunodeficiency disorders

h. Rehabilitation in chronic respiratory disorders including nutritional management.

7. Tuberculosis

a. Epidemiology, microbiology, infectivity and pharmacology

b. In vivo and in vitro diagnostic tests including their accuracy and interpretation

c. Diagnosis and management of Primary and post-primary pulmonary TB, including DOTS and contact tracing

d. Diagnosis and management of extra pulmonary TB.

e. Diagnosis and management of multidrug-resistant tuberculosis (MDR).

8. Bronchial Asthma and other wheezing Disorders

a. Definitions, pathophysiology and basic epidemiology

b. Different phenotypes and their different pathologies and long-term outcomes.

c. Environmental factors relevant to asthma and other wheezing disorders

d. Diagnosis and management of bronchiolitis and its complication and long term sequelae.

e. Relevant abnormalities in lung function including airway responsiveness.

f. Understanding difficulties in diagnosis and differential diagnosis

g. Evidence-based management of asthma at different ages including age-related pharmacology

h. Emerging therapeutic strategies.

9. Allergic Disorders

a. Understanding pathophysiology immune response, control of IgE regulation and the mechanisms of allergic inflammation, basic genetics, basic epidemiology.

b. In vivo testing for Ig E-mediated sensitivity (Procedure and interpretation of skin prick testing, challenge testing: meaning and validity of test results)

c. In vivo methods for determination of specific Ig E, inflammation markers.

d. Additional tests in allergology (patch texts, allergen bronchial provocation tests)

e. Diagnosis and management of anaphylaxis, allergic rhinitis, atopic dermatitis, food allergy etc.

f. Specific immunotherapy

g. Prevention measures.

10. Sleep Medicine

a. Physiology and pathophysiology of sleep relevant for PRM.

b. Diagnosis of and screening for obstructive sleep apnoea and upper airway resistance syndrome and hypoventilation.

c. Polysomnography

d. Management of sleep-related respiratory problems.

e. Impact of obesity on respiratory function.

11. Inhalation therapy

a. Basic science of aerosol production and delivery.

b. Indications for inhalation therapy.

c. Understanding available techniques and their advantages and limitations.

d. Delivery of drugs in children with artificial airways.

12. Technology-dependent children

a. Pathophysiology of chronic respiratory failure

b. Home oxygen therapy including control, investigations and weaning strategies.

c. Invasive and non-invasive home ventilatory support including control, investigations and weaning strategies.

d. Tracheostomy management including control, investigations and weaning strategies.

e. Basic technical understanding of equipment

f. Airway clearance techniques (physiotherapy, intermittent positive breathing, insufflator-exsufflator).

g. Recognition of associated problems, setting up and coordinating a multidisciplinary team.

13. Management and Leadership

a. Leadership and collaboration in a multidisciplinary team.

b. Understanding healthcare resources in relation to paediatric respiratory medicine.

c. Audit presentation and participation.

d. Representation of respiratory medicine in the medical community and to the public.

e. Negotiations with colleagues and other allied professionals.

f. Understanding of health costs and economics.

g. Health care service development and project management.

14. Teaching

a. Knowledge and application of different teaching methods.

b. Knowledge and application of assessment methods.

c. Knowledge and application of educational programmes for parents and patients.

d. Application of teaching methods at all levels of medical education.

15. Research

a. Understanding and application of the principles of planning, designing, conducting, analyzing and publishing research projects.

b. Scientific literature appraisal

c. Understanding and application of the ethical principles of paediatric research.

d. Significant personal contribution to a scientific project and authorship in a peer-reviewed article.

16. Communication

a. Understanding anxieties and social problems of children and their parents, both related and unrelated to respiratory diseases.

b. Ability to discuss diagnosis, treatments and prognosis with children

c. Ability to encourage and respect the views of children and their families in decision-making

d. Understanding needs of adolescent with chronic lung disease and ability to ease their transition to adult care.

e. Leadership and collaboration in a multi-disciplinary team, respect and appreciation of the contribution of all members.

f. Management of complaints in a helpful and non confrontational way.

g. Ability to know when to seek the advice of colleagues.

h. Ability to support and make time for appraising trainees and other healthcare workers,

i. Understanding of medical ethics, for both clinical practice and research.

j. Knowledge of the articles of Human Rights

k. Ability to discuss end-of-life decisions with families and young people.

17. Epidemiology and environment health.

a. Basic understanding epidemiologic principles including point and period prevalence versus incidence in respiratory diseases such as bronchial asthma, tuberculosis, bronchopulmonary dysplasia.

b. Impact of indoor and outdoor air pollution on respiratory health.

c. The burden of paediatrics respiratory diseases on healthcare resources.

18. Rare diseases

a. Pathophysiology, genetics, aetiology, diagnosis and management of cystic fibrosis and primary ciliary disorders.

b. Diagnosis and management of gastro-oesophageal reflux- associated lung disease.

c. Diagnosis and management of bronchiolitis obliterans

d. Pathophysiology, genetics, aetiology, diagnosis and management of interstitial lung diseases.

e. Pathophsiology, genetics, aetiology, diagnosis and management of pulmonary vascular disorders including pulmonary arterial hypertension.

f. Diagnosis and management of pulmonary haemorrhage

g. Diagnosis and management of respiratory manifestations of systematic disorders with lung involvement.

h. Diagnosis and management of respiratory manifestations of oncological disorders with lung involvement.

i. Diagnosis and management of respiratory manifestations of muscular-skeletal disorders with lung involvement.

j. Diagnosis and management of plueral diseases including spontaneous pneumothorax.

k. Diagnosis and management of respiratory manifestations of immunodeficiency disorders with lung involvement.

19. Ethical issues in management of paediatrics respiratory diseases/disorders

a. Management of terminally ill child with respiratory disorders or diseases

b. Life support and its ethical issues-(euthanasia, masterly inactivity, mercy killing and their ethical/social implications).

c. Research ethics in PRM

COMMITTEE MEMBERS

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ACKNOWLEDGMENT
We are grateful to Dr Nwaneri Damian who assisted in collation and editing some of the materials.